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SPRECKELS SUGAR BEET BULLETIN

PUBLISHED AS A SERVICE TO SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

SPRING 1969

General News and Comments

Spring Harvest - The untimely winter rains coupled with increased yields from an already bumper 1968 crop will undoubtedly mean a later than normal spring campaign wrap-up in Northern California. All four of Spreckels' California factories are operating so that harvest can be completed as soon as possible. Everyones cooperation in delivering scheduled tonnage of beets free of dirt, trash, and tops is certainly needed to complete harvest on an orderly and timely basis.

Central Arizona - Harvest will begin in central Arizsometime in late April and end in July. Sugar beets produced primarily in the Salt River Valley will be processed in the new Chandler, Arizona factory.

Imperial Valley - Beginning in mid-May, the Company's Imperial Valley crop will be shipped to the Mendota, California factory for processing. It appears most likely that the completion of harvest in Imperial County will merge with the commencement of harvest of the 1969 sugar beet crop in Kern County and other South San Joaquin Valley locations.

Curly Top Virus - Due to the late and abundant winter rains in the San Joaquin Valley the spring flight of beet leafhoppers is not expected until late April.

Populations were higher than normal last fall and a record acreage in the west side foothill area was treated under the auspices of the State Beet Leafhopper Control Program. The State's spring spray program is currently under way.

Most sugar beet growers along the west side of the Valley have used pre-plant treatments of Phorate (Thimet) this year for additional protection against the beet leafhopper.

New Agricultural Film - California's modern bonanza, the multi-billion dollar agriculture business, is dramatically portrayed in a new PG&E motion picture, "Harvest". Two years in the making, the 27-minute color film reviews man's quest for food and water and his success in conquering arid lands.

It is the story of modern farming methods which have turned California into the world's most bountiful agricultural region.

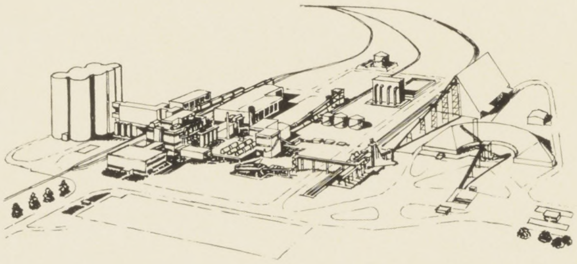
Jon F. Stanton, PG&E's prize-winning cinematographer, has captured the state's agricultural domain in scenes that follow the four seasons and move from snowcapped mountain tops to fertile valleys.

The 16mm movie is available without cost to schools, service clubs and other groups through PG&E's Film Library in San Francisco or local PG&E offices.

SPRECKELS SUGAR BEET BULLETIN

PUBLISHED AS A SERVICE TO SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

VOL. 33 *SPRING, 1969* *NO. 1*



Gerald Nordstrom .... *Editor*

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R. T. Johnson .... *Vice President*
J. M. Kendrick .... *Agr. Manager*

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Byron Larsen .... *District I, Salinas*
Stewart Anderson .... *District II, Manteca*
Don Hefner .... *District III, Woodland*
Dan Dieter .... *District IV, Mendota*
Ralph Lambdin .... *District V, Arizona*

Spreckels Sugar Beet Bulletin is published quarterly by the Agricultural Department of Spreckels Sugar Company as a service to its growers. Mention of specific methods, devices and implements does not constitute an endorsement by the Company. Please address all communications to: Spreckels Sugar Beet Bulletin, P.O. Box 325, Mendota, California 93640. Please include your zip code.

Cover Comment: "Spring Sky Over The Spring Brightened Desert" by Darwin Van Campen of Phoenix, Arizona. The picture was taken near Florence Junction, Arizona.

The Arizona Story

By Ralph S. Lambdin

Ralph Lambdin is District Manager for Spreckels Sugar Company in Arizona. His headquarters are located at Factory 5, Chandler, Arizona.

The Spreckels Sugar Company will soon complete its third crop year in Arizona. We can look back over this period and point to some difficulties, but we can generally say our efforts have been successful. Each year has been an improvement over the previous year and many of the goals originally established when our company elected to start operations in Arizona have now been realized.

Arizona's opportunity to start in the beet sugar business came about when the Federal Government decided in 1962 that the domestic sugar supply should be increased. Some twelve potential beet-growing areas in nine different states made application for reserve acreage allotments. The governor of Arizona appointed Mr. Floyd Smith to act as chairman of a committee which would work toward securing a sugar beet acreage allotment for the state. Mr. Smith's committee and many other individuals who were vitally interested in this project were responsible for Arizona eventually being granted a 20,000-acre reserve allotment for the purpose of establishing a beet sugar industry in the state. The allotment was granted by the Secretary of Agriculture and it served to protect the state's right to grow sugar beets for three years, 1966, 1967 and 1968.

FACTORY SITE

Once Arizona had secured an allocation of sugar beet acreage and an interested processor, the next step was for Spreckels to establish a factory site within the anticipated sugarbeet-producing area. A great deal of time and effort were expended in the study because of the many factors that are necessary to the long term operation of sugarbeet processing facilities. Access to railroads, good highways, adequate supply of good water, power and labor are only some of the basic essentials for a factory operation. These requirements, when located in a good farming area providing a sufficient supply of beets over a period of many years, constitute and ideal factory site. Following a great deal of deliberation and the study of a number of potential locations, it was decided that 680 acres of land, six miles south of Chandler, Arizona, combined the best of all factory site requiriements and the acreage was purchased.

On this site, a sugar factory was built. The factory was designed to be capable of slicing 4,250 tons of beets in a 24-hour period and of producing 1,000,000 pounds of sugar each day.

GROWING CONDITIONS

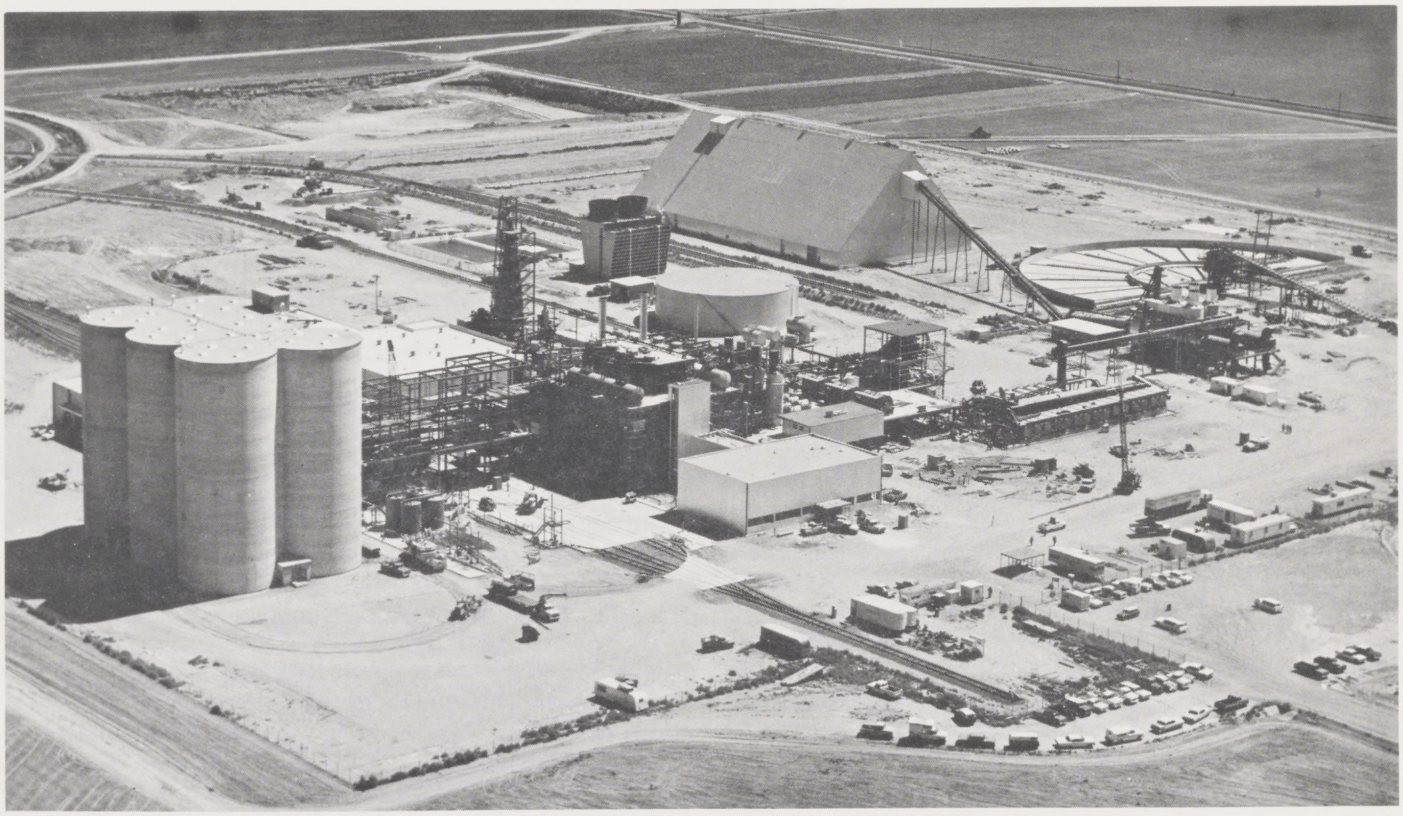
Arizona has approximately one million acres of developed, irrigated land. Most of this developed land is located in Maricopa and Pinal counties, but other developments are scattered from Yuma to Willcox and from Marana to Parker. The map on page 5 gives some idea of the location of these farming areas. The climate in the farming areas in Arizona is varied due to different elevations which range from a few feet above sea-level to about 4,500 feet at Willcox. Because of this wide variation in elevation and climate, it is possible to grow sugar beets during two seasons in Arizona. The Salt River Valley, with an elevation of about 1,200 feet has mild winters and extremely hot summers. This valley is well adapted to a growing season that essentially parallels that in the Imperial Valley of California. Plantings are made during September and October and harvest is scheduled from late April to late July. The areas around Safford and Willcox, with elevations ranging from 3,000 to 4,500 feet are planted in the early spring and harvested during October, November and December. Plantings can also be made in the Marana and Salome areas during January and February. These areas are at an elevation of approximately 2,000 feet and harvest is scheduled during the following October and early November.

The yield and quality of the crops produced thus far in Arizona have been generally good. It has been very encouraging to note the excellent crops produced by some growers in every area where sugarbeets have been tried.

Many of the insects, diseases and weed problems that are common to sugarbeets in other parts of the country are also common to Arizona. Most of the problems which are encountered with sugarbeets in this new area will be minimized or eliminated as growers and field superintendents become more experienced with them.

AGRICULTURAL STAFF

As in California, Spreckels maintains a trained agricultural staff in Arizona to assist growers wherever possible in the production, cultivation and harvest of their sugarbeet crop. In addition, an agricultural research program was initiated in Arizona soon after the acreage allotment was granted. At the present time, this investigative program is under the direction of a full-time agronomist and current research covers a wide range of local problems. Variety tests are conducted in all areas each year to gather information on



Spreckels Sugar Company's Chandler, Arizona Factory during construction. Completed in 1966 and now in its third year of operation, the factory has a slicing capacity of 4,250 tons of sugar beets per day (approximately 1,000,000 pounds of sugar).

present commercial sugarbeet improved strains. A wide range of agricultural chemicals are tested annually for evaluation of effective disease and insect control. Tests are also conducted on old, new and revised cultural methods that may improve the crop or reduce its production costs. An intensive effort is being made to find herbicides that will assist our growers in maintaining weed free fields at a minimum cost.

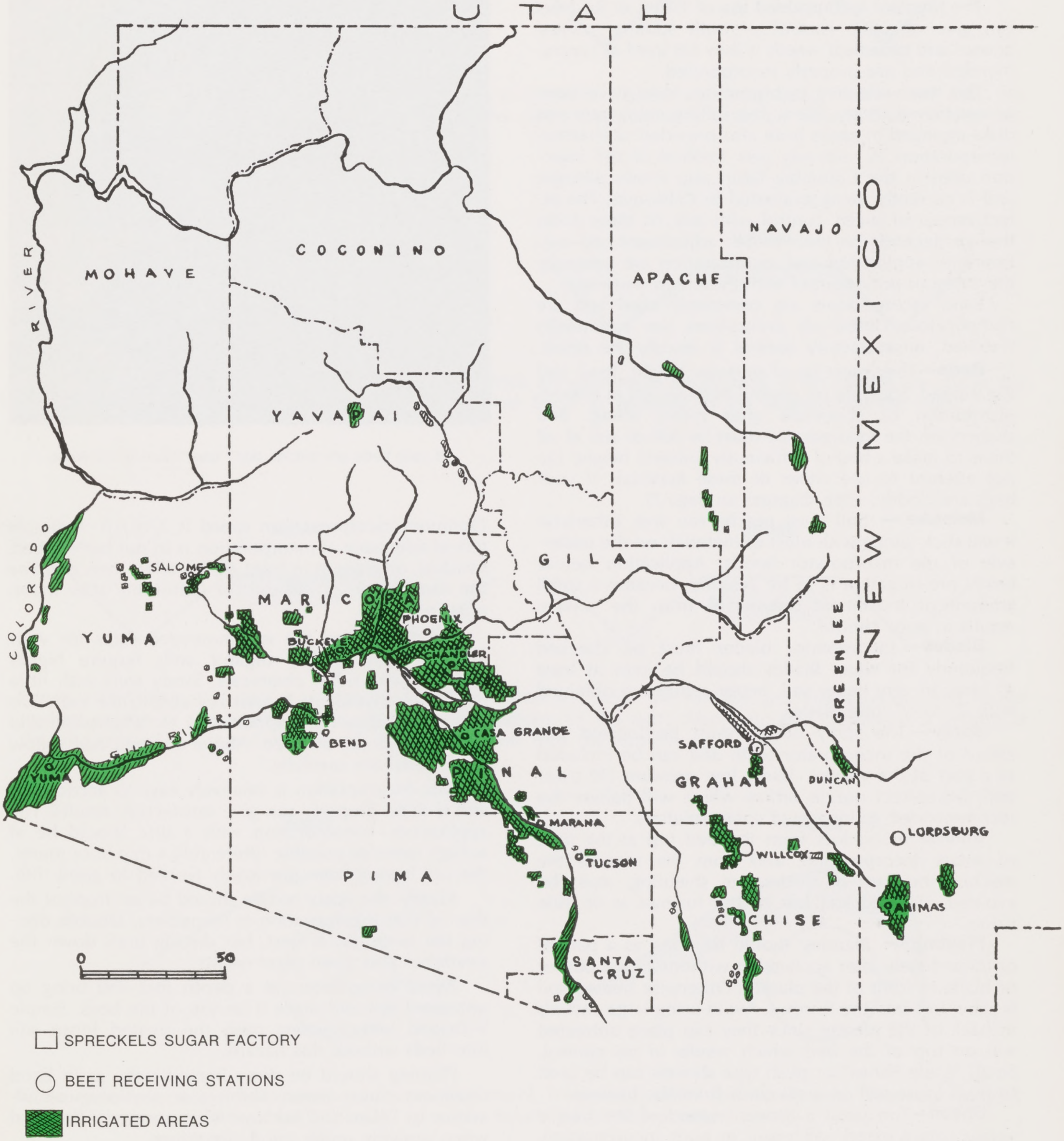
COOPERATIVE RESEARCH

In discussing sugarbeet research in Arizona, it is only fitting that we mention the research programs that have been carried on for a number of years by the University of Arizona, the Extension Service and the U.S. Department of Agriculture. The agronomic studies conducted for the past few years by John Nelson from the University of Arizona, and the intensive virus surveys conducted by Dr. Earl Rupple of the U.S. Department of Agriculture are testimonials to the efforts being made in Arizona to improve sugarbeet production. In addition, credit needs to be given to a host of scientists and other people interested in Arizona agriculture who have assisted and cooperated in the task of starting a new crop.

Arizona's first commercial crop was planted in September of 1966 in the Salt River Valley and in parts of Pinal County. Approximately 9,000 acres were harvested the following summer. The crop from these plantings averaged 17 tons of beets per acre and 14.86 percent sugar. When government restrictions on acreage were lifted, the Company elected to contract acreage in the areas around Safford, Willcox and Lordsburg, New Mexico, during the spring of 1967. Loading stations were constructed at these locations for rail shipment of beets to the Chandler factory. Beets from these plantings were harvested during the late fall.

In 1967, aproximately 125 Central Arizona growers harvested slightly more than 12,000 acres of sugarbeets at 22.3 tons per acre and 15.04 per cent sugar. In 1969 over 300 growers will plant nearly 36,000 acres. While both grower and processor in Arizona have come a long way in a relatively short time, there are still a multitude of opportunities for further improvement. It seems apparent that more and more growers are considering sugarbeets as a consistent part of their crop rotation and the new crop is gradually becoming an integral part of Arizona's farm economy.

IRRIGATED AREAS IN ARIZONA



Proper Incorporation Of Pre-Plant Herbicides Is Essential

The preplant incorporated use of Tillam or Ro-Neet can give effective control of both summer annual grasses and broadleaf weeds if they are used as recommended and are properly incorporated.

The most effective incorporation tools have been power driven rotary tillers, but rolling cultivators and disks arranged in gangs have also provided satisfactory incorporation. A relatively new method of soil injection used in the Columbia Basin also shows promise and is currently being evaluated in California. The effectiveness of weed control with any of these tools though depends on their proper adjustment and use. Improper application and incorporation are generally the cause of poor control with these two materials.

Band incorporators are commonly used and are complicated. Unless all precautions are continually watched, unsatisfactory control is usually the result.

Beds—They must be of uniform height, level and flat topped. Spraying on peaked beds results in uneven distribution of chemicals after rotary tilling. Bed shapers on the incorporator must be full of soil at all times to make a bed of sufficiently uniform height. Do not attempt to use either of these materials if your beds are cloddy. (See diagram on page 7).

Moisture — Soil must not be too wet, otherwise it will stick (along with most of material) on the underside of the incorporator hoods. Application before heavy pre-irrigation is to be avoided, because a small amount of movement downward from the surface results in poor control.

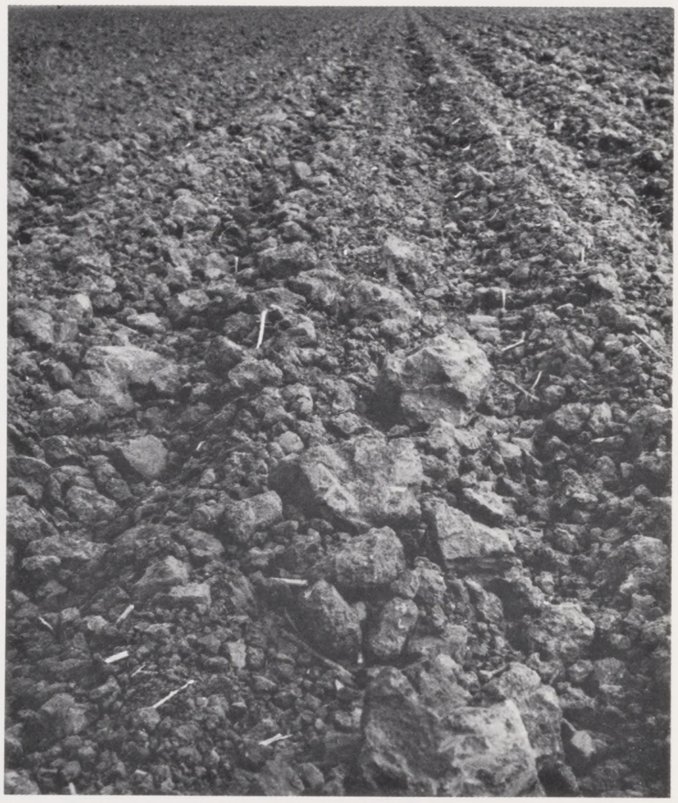
Blades— Incorporator blades must be checked frequently for wear. Blades should be kept at least 4″ long. In very heavy soil, better results are obtained with 5″ to 6″ long blades.

Spray— The spray nozzle must be located just ahead of the incorporator teeth and can be included as a part of the shaper. Use a low pressure (30 p.s.i.) and the correct nozzle orifice which will deliver the recommended gallonage of spray solution.

Shields — Soil loss from the bed top at the time of rotary incorporation, and from the rear of the machine because of inadequate shielding, must be avoided. Treated soil lost to the furrows is of little value.

Planting — Planting should be done as a part of or immediately after application without a clod pusher or blade in front of the planter. Otherwise treated soil is again lost into the furrows. Avoid using large shovels in back of the planter since they can place untreated soil on top of the bed which results in no control. Small "Mule Shoes" or push type shovels can be used to push loose soil or small clods from the furrow.

Speed—Too great a forward speed of the tractor versus rotary speed will result in poor incorporation. Optimum incorporatation speed is 2 m.p.h. A simple test of adequacy of incorporation is to put barley seed, sawdust, or gypsum in front of the tiller, then examine the distribution in the soil for uniformity after incorporation.



If your beds are cloddy don't use Tillam or Ro-Neet.

Rates— Follow the recommended rates for your area carefully. Highly organic soils require higher rates, as with other chemicals. Sandy soils with little colloidal constituents to partially absorb the materials give weeds maximum opportunity for absorption and less material can be used. Above all, read and follow label directions carefully.

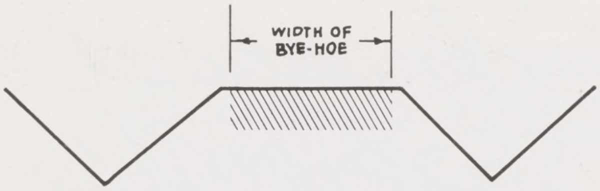
Disc-incorporation is relatively easy to accomplish and if done properly can give satisfactory results. The application—incorporation with a disc should be at as high speed as possible (preferably 4 m.p.h. or more), the soil having been previously worked to good tilth.

Ideally, the spray nozzle should be on front of the disc so that incorporation is immediate. Double discing the same day is best, but discing back down the swath has also given good results.

Avoid using listers at a depth that will bring up untreated soil and place it on top of the beds. Simple V-shaped bed-crowders push the treated loose soil into beds without this hazard.

Planting should be done immediately, as in band treatment. Sugar beets exhibit true physiological tolerance to Tillam and Ro-Neet when properly used and when growing under good conditions.

RIGHT



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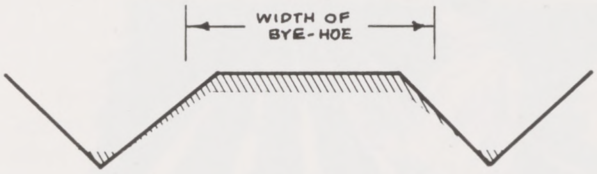
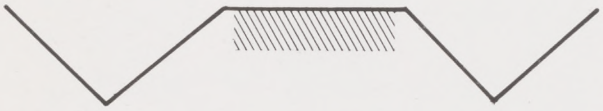


The Bye-Hoe head must be narrower than the bed-top to prevent treated soil from being thrown off into the furrows. This results in poor weed control because the rate of application is based on the width of the bed top.

RIGHT



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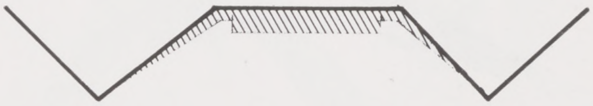
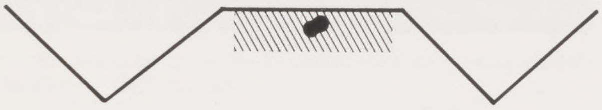


The unit should be run at a depth so that the side shields are running in the ground. If the shields are above the soil line treated soil is thrown out of the desired treated band as pictured in the diagram on the right.

RIGHT



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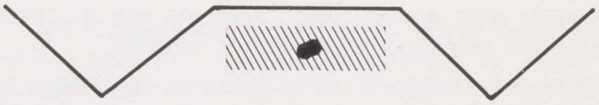
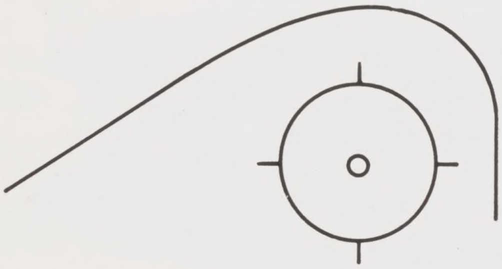


When a sled planter is used it is important that untreated soil from the furrows and edges of the bed is not pushed on top of the treated soil as shown in the diagram on the right. Also, with sled planters it is important that the treated soil is not pushed off the bed top and into the furrows.

RIGHT



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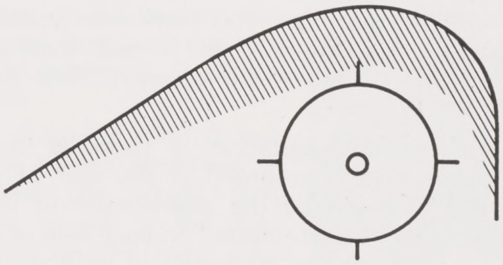


When operating on wet soil (particularly wet clays) check frequently under the hoods and clean out packed wet soil if necessary. When the soil builds up in the hoods poor incorporation results.

*Drawings courtesy of Stauffer Chemical Co.

Agricultural Staff Notes

Selected Notes And Observations From Spreckels Sugar Company's Agricultural Research And Field Staffs.

Winter Weed Control

Several growers in the Goshen area have found the Pyramin-dalapon combination to be a very useful herbicide for control of many major broadleaf weeds and grasses. However, since this combination is applied only with ground applicators its use has been very limited during our wet winter weather.

Often when weeds are in just the right stage for treatment, our soil is much too wet for ground applicators and tractors. When we miss this ideal treatment stage it reduces the effectiveness of the herbicide and ultimately reduces the growers net return per acre.

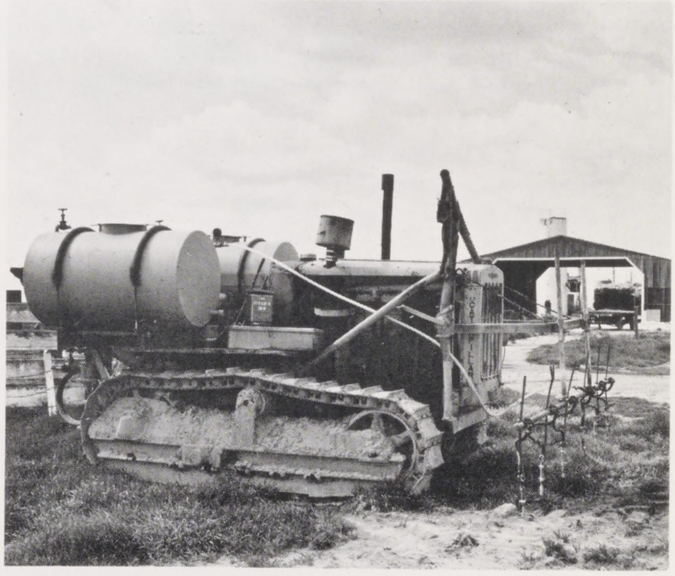
After many weeks of wet rainy weather, Alvin and Joe Correia decided to convert an old RD-6 Caterpiller into a ground spray-rig and attempt to apply Pyramin-dalapon.

Since this Caterpiller model has tracks spaced relatively close to 30 inch centers, converting it to beet beds was comparatively easy. This conversion entailed the removal of the inner two inches of each track-pad thus reducing the overall width of each track from 16 to 14 inches.

Spray pressure and agitation is supplied by a double pumping system mounted at the rear of the crawler which is driven by the power-take-off unit. Two low volume tanks are mounted on each side of the drivers seat just above the tracks along with gauges indicating pressure output. Another system indicating the gallons of liquid remaining in each tank is also located by the drivers seat for easy reading. The most logical place to mount the spray boom was at the front of the track layer where it could be watched closely by the driver at all times.

At the present approximately 300 acres have been treated with Pyramin-dalapon using this piece of equipment. Since the acreage treated is primarily a clay loam soil, it would probably be several weeks before a conventional spray applicator could have done the same job. At the same time the weeds would be beyond the desirable size for treatment resulting in poor weed control.

Morris Ball — Visalia



The Correia Bros. of Goshen, Calif. converted this RD-6 Caterpillar into a spray rig to apply Pyramin and Dalapon.

Pyramin plus dalapon gave the Correias excellent weed control.

The "Mule-duck"

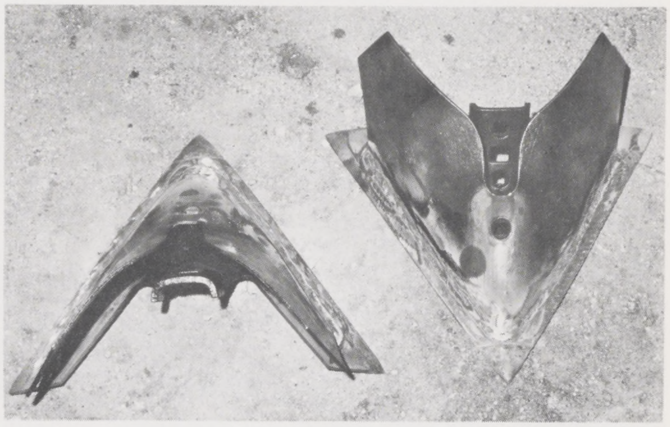
Last season, Frank Fanucchi, a Wasco grower, adopted a practice of using a modified cultivating tool on sugar beets. The practice employed was cultivating and furrowing out or "working the middles" up to harvest time. The tool he used was a Planet Jr. shovel, commonly called a mule foot, that is used extensively in potato culture. The shovel was modified and welded on top of a standard 14 inch "duck foot" cultivator sweep. In combination, this unit has the action of pushing, rather than slicing and throwing the dirt. Also, the unit has the action of shallow, rather than deep penetration of the soil.

Frank feels there are several advantages in using this tool, especially when applied to late harvested beets. These are as follows:

1. Furrows are kept clean of all weeds and debris.
2. Good water movement and percolation.
3. Reduces crown rot because the soil is not thrown onto the beets.
4. Beets are not disturbed.
5. High and uniform beds are maintained throughout the season.

Frank is sold on this tool and practice and will adopt it as a standard cultural procedure on future beet crops.

Martin Chernek — Bakersfield

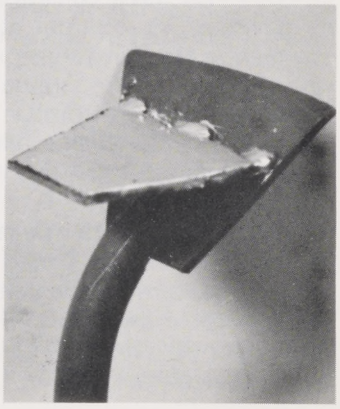


The "mule-duck" is used for cultivating and furrowing out.

Cropmaster Blocker Adaptation

The Cropmaster beet thinner, while being an excellent blocker is somewhat difficult to adjust and lacks accurate depth control. To counter this, a simple addition to each knife can provide an excellent depth gauge.

The shoe as it may be called, may be constructed from strap iron 3/8" x 2" x 3¼" long on the long side and tapered to 1¾" on the short side. The taper is to insure that the shoe will not remove wanted plants. The long side of the shoe is then welded to the back side of the knife at the bottom of the spoke and at a right angle to the long portion of the spoke. If hard-facing is desired, wear will occur on the bottom side of the shoe and the portion furtherest from the knife.



Depth settings may then be accomplished by tilting the wheel from side to side at the pivot point on the long shaft. The more vertical the wheel the deeper the cut will be.

Stan Bayer—Mendota

An Association To Be Proud Of

Steve Pervetich and Field Superintendent Art Young discuss Steve's outstanding sugar beet production record.

Lloyd and Walter Schween (left) are shown discussing their retirement with Byron Larsen, District Manager at Salinas.

STEVE PERVETICH

Steve Pervetich of Watsonville, California recently retired from active row crop farming. An outstanding sugar beet grower, Steve has never grown a crop under 30 tons per acre and has maintained an average yield in excess of 35 tons per acre the last ten years.

Steve was born in Lead, South Dakota in 1901. In 1919 his family sold the two sections of land they owned for the then going price of $1.28 per acre and came to Watsonville, California.

From 1920 through 1929 Steve's activities included working in mines in the Butte, Montana area, working for the railroad in Nebraska, and working for the General Electric Company in Oakland. He returned to Watsonville at the end of this period and began working on farms in the area and in 1929 he began farming on his own.

Steve raised his first crop of sugar beets in 1934 and has been at it ever since. He very vividly remembers hauling sugar beets to outside receiving stations in wagons in the late 20's and early 30's and hand topping and loading which continued until the advent of the mechanical harvesters in the early 40's. Steve remembers when beets were thinned for 35 cents per hour—$1.85 per hour is common in his area now.

Steve now has his farm leased out which will give him plenty of time to enjoy some of his avocations, the most popular of which is duck hunting.

SCHWEEN BROTHERS

1969 finds the Schween Brothers, Barden, Walter and Lloyd retired after some 40 years of farming in the Blanco area of the Salinas Valley. Barden retired in 1962 while Lloyd and Walter retired last year.

The Schweens have been outstanding sugar beet growers and have consistently raised crops averaging in excess of 30 tons per acre. Based on their average production the Schweens produced enough sugar each year to supply the annual needs of 10,000 people (based on the per capita consumption of 100 lbs.). Taken over the 40 plus years they were engaged in sugar beet production this becomes a rather staggering figure.

Barden and Walter began farming with their father in the 1920's. Lloyd joined them in 1935 after graduating from Stanford University. The size of their operation varied from 700 to 1500 acres with 1,000 acres being about average. Crops grown included sugar beets, lettus, cauliflower, celery, beans and potatoes.

The Schween's association with sugar beets actually began in 1915 when their father first raised them. Walter recalls flat planting, little or no irrigation, cultivating with horses, drastic yield reduction due to curly top, and 4 ton per acre yields in the 20's. Lloyd remembers how harvest in the 30's consisted of plowing sugar beets out with a lifter-type plow, hand topping them for .25 to .30 cents a ton and hauling them to the receiving station for .50 to .75 cents a ton. Walter said that in the 1930's curly top tolerant varieties, high yielding hybrids, and changes in cultural practices made sugar beets a consistently good crop and easy to borrow money upon.

The Schweens now have their land leased out and are engaged in active retirement. Walter will devote a good deal of his time to community activities and Lloyd being an avid sportsman will undoubtedly have his leisure hours filled.

We at Spreckels Sugar Company want to express our thanks to Steve Pervetich and the Schween Brothers for the fine relationship we've enjoyed with them for the past 40 years and wish them well in their retirement.

Sugar beet fields which have been damaged by flooding are eligible for abandonment or deficiency payments.

Sugar Act Payments For Abandonments and Deficiencies

Abandonment Payments - Sugar beet acreage abandoned due to drought, flood, storm, freeze, disease or insects after it is too late to replant in the same crop cycle is eligible for payment on the basis of one-third of the farm's normal yield. Conditions for payment are as follows:

(1) The intended abandonment must be reported to the county ASCS office BEFORE the beets are destroyed.

(2) The beets must have been planted on suitable land and cared for in a suitable manner up to the time of abandonment.

(3) The farm must be located in an approved abandonment and deficiency area — one in which the yields on 10 percent of the farms or 10 percent of the acreage are below 80 percent of the normal yields of such farms.

Deficiency Payments - A farm on which the production of sugar beets is below 80 percent of its normal yield due to one or more of the six reasons listed above, may be eligible for payment at the rate of 80 percent of the normal yield. The conditions for payment are the same as those for abandonment except that it is not mandatory, though desirable, that a possible deficiency be reported to the ASCS county office before harvest.

Prevented Acreage Credit - Acreage history protection is provided for sugar beet producers who are prevented from planting because of drought, flood, storm, freeze, disease, or insects. The prevented acreage must be located in an approved local producing area in which planting was prevented on ten per cent or more of the farms in the area. A grower's prevented acreage credit for any 1969 planted beets cannot exceed the largest acreage credited in the last three years. An application must be filed at your local ASCS county office.

Agricultural Staff Changes

Ben Marcum

Gary Allen

W. Ben Marcum recently joined Spreckels Sugar Company's Agricultural Staff at Mendota as a Field Superintendent.

Mr. Marcum is a native of California and a graduate of the University of California at Davis where he majored in Agricultural Education. He served as Secretary of the Agricultural Conservation Association in Santa Cruz County for two years and was employed by Spreckels Sugar Company for a period of 23 years in the Woodland and Salinas Districts. Since then he has been active in county and state fair management on a full time basis and recently served as a Field Representative for Ben Barrow Company in Woodland.

He has been active in community affairs which included 28 years of service to various 4-H clubs.

Mr. Marcum, his wife Ilene and family will reside in Fresno, California.

Gary M. Allen recently joined Spreckels Sugar Company's Agricultural Staff in Chandler Arizona as an Assistant Field Superintendent. He will work with the field and research staffs.

Mr. Allen hails from Litchfield Park, Arizona where he attended the Agua Fria Union High School. A recent college graduate, he attended Arizona State University and majored in Agricultural Crop Production and Management.

Mr. Allen and his wife Nancy reside in Mesa, Arizona.

USDA Sugar Beet Scientist Retires

Dewey Stewart, Leader, Sugar Beet Investigations, Agricultural Research Service, U.S. Department of Agriculture, retired December 31, 1968, after 43 years of service. His career with the Department began in 1925 after obtaining his B.S. degree from Auburn University in 1922, and his M.S. degree from Michigan State University in 1924. He completed additional graduate work at Cornell and the University of Maryland since joining the Department.

Mr. Stewart's first assignment was in sugar beet research at Rocky Ford, Colorado. His studies showed that the most promising and economic control of Cercospora leaf spot was the production of resistant varieties. He concentrated, therefore, on a breeding program to develop such cultivars. He was transferred to the Plant Industry Station at Arlington Farm, Virginia, in 1932. The leaf spot breeding project was expanded at that time to include other phases of sugar beet breeding work. It was further accelerated when the Plant Industry Station was moved to Beltsville, Maryland.

Mr. Stewart has been leader of Sugar Beet Investigations since 1955. He was responsible for a broad national program of research. During this period his unit played an important role in developing the monogerm sugar beet seed.

Mr. Stewart is a member of nine professional societies. He served as President of the American Society of Sugar Beet Technologists in 1961-62. He received their Meritorious Service Award in 1958. An award for Superior Service from the USDA was bestowed in 1959. He also shared in a USDA Unit Superior Service Award in 1968 for development of monogerm varieties.

Mr. Stewart will continue his research with Sugar Beet Investigations at Beltsville, Maryland, as a Collaborator.

Mr. Stewart is an author of 65 publications. He produced varieties with combined leaf spot and black root resistance and others with combined resistance to curly top and leaf spot. He demonstated heterosis in sugar beet hybrids early in his career. He discovered a Fusarium yellows disease of sugar beets in southeastern Colorado. Mr. Stewart is credited with the first viable interspecific hybrid between *Beta procumbens*, a wild beet with resistance to nematodes, and the sugar beet.

Dewey Stewart

SALINAS PUBLIC LIBRARY

SPRECKELS SUGAR BEET BULLETIN

PUBLISHED AS A SERVICE TO SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY

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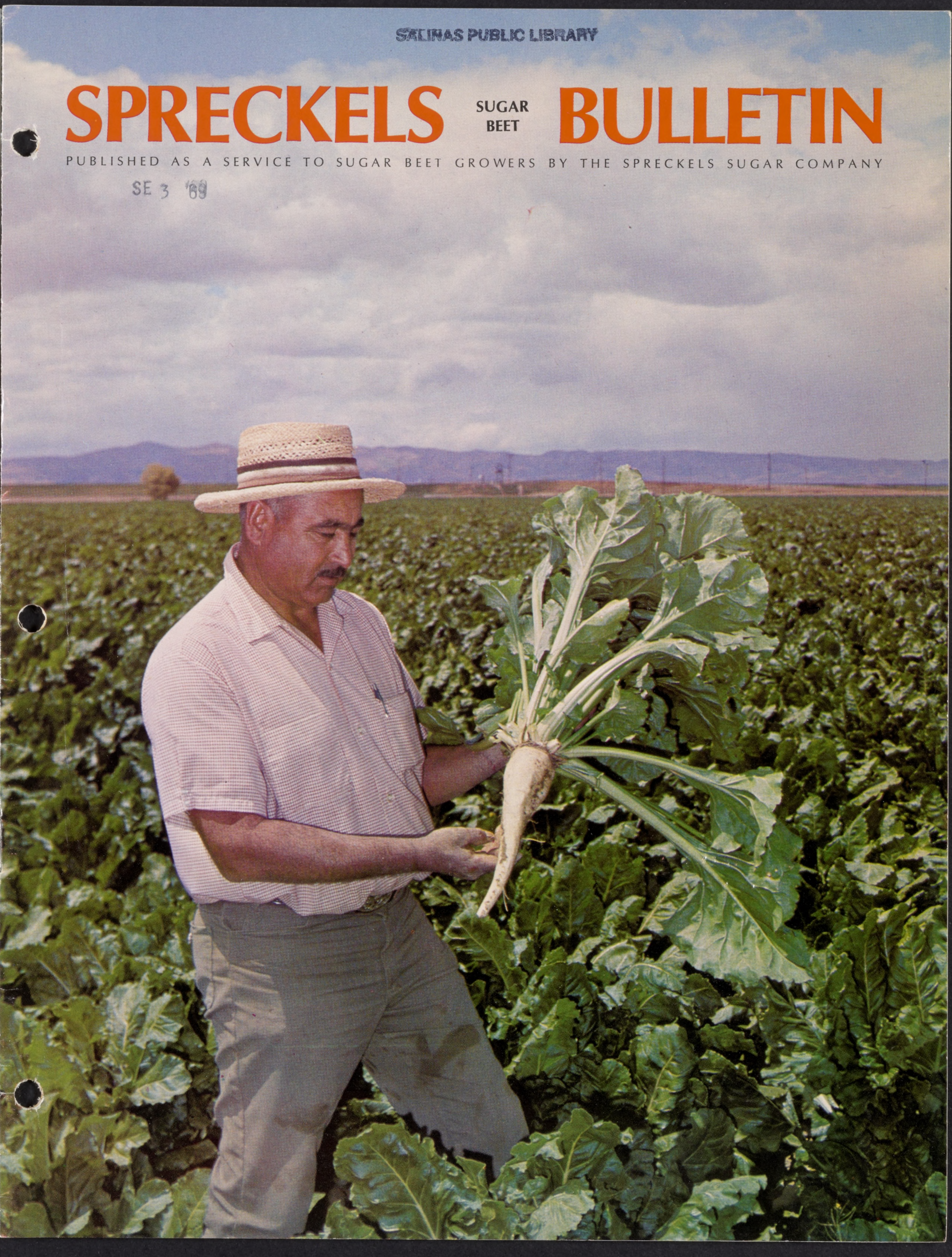

General News and Comments

Sugar is a Bargain - A pound of sugar which costs the American worker less than three minutes of his pay, costs his Russian counterpart two and one-half hours pay.

The same pound of sugar costs the United Kingdom workers 8 minutes pay; the West German, 14 minutes; the Frenchman, 15 minutes.

In terms of purchasing power, sugar in America is cheaper than ever before.

World Production - Worldwide production last year was 73 million tons of sugar - 46 percent came from sugar beets and 53 percent from cane.

The United States is the world's second largest producer of beet sugar (Russia is first), has about one-twelfth of the world's population and consumes about one-sixth of the world's sugar production.

American Efficiency - The American beet sugar industry can produce a ton of sugar from seed to sack with less hours of labor than any foreign country.

Cuba, the world's leading cane country, requires 14 months to produce one and one-half tons of raw sugar per acre while the average American sugar beet acre, in its seven-month growing period, produces two and one-half tons of sugar, raw value.

U.S. Consumption - Per capita consumption of all caloric sweetners is about 116 lbs. on a dry edible basis. Of this total, sugar constitutes 97 lbs., corn syrup 12 lbs., dextrose 4.4 lbs., honey about 1 lb., and maple syrup, sorghum, etc., constitute the balance.

From 1950 to 1968 total sugar consumption in the U.S. increased from 8.2 million tons raw value to 10.6 million tons.

1969 Harvest - Harvest of the 1969 crop of sugar beets in the Southern San Joaquin Valley is well under way. The first shipments fo beets were made on July 7th from Spreckels' loading stations at Conner in Kern County and Stratford in Kings County. The Manteca and Mendota factories were the first to start the Fall campaign but by the end of July all four of Spreckels California factories were processing South San Joaquin sugar beets.

The continuous rains experienced last Winter and Spring delayed plantings but the extremely favorable growing conditions experienced in June and July helped offset some of the lost growing time. Final yields in the Southern San Joaquin Valley are expected to settle between 21 and 22 tons per acre.

SPRECKELS SUGAR BEET BULLETIN
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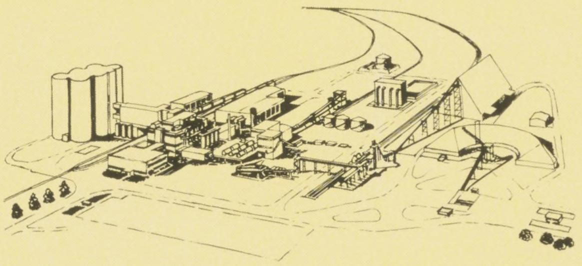


Gerald Nordstrom .... *Editor*

Agricultural Department—Spreckels Sugar Co.

R. T. Johnson .... *Vice President*
J. M. Kendrick .... *Agr. Manager*

District Managers

Byron Larsen .... *District I, Salinas*
Stewart Anderson .... *District II, Manteca*
Don Hefner .... *District III, Woodland*
Dan Dieter .... *District IV, Mendota*
Ralph Lambdin .... *District V, Arizona*

Spreckels Sugar Beet Bulletin is published quarterly by the Agricultural Department of Spreckels Sugar Company as a service to its growers. Mention of specific methods, devices and implements does not constitute an endorsement by the Company. Please address all communications to: Spreckels Sugar Beet Bulletin, P.O. Box 325, Mendota, California 93640. Please include your zip code.

Cover Comment: Louie Borrego, an employee on the Pilibos Brothers, Inc. ranch near Mendota, California, is shown inspecting a sugarbeet from this year's crop. The picture was taken about 2 months prior to harvest.

The Southwestern Sugar Beet Industry

By Marcel J. Boulais

Mr. Boulais is a grower from Tolleson, Arizona. The following article is the text of a presentation he made as a sugar beet grower at The Secretary of Agriculture's Listening Conference recently held in Fresno, Calif.

Sugar beets are but one of several crops I grow and they are, of course, when grown for the production of sugar, one of the newest crops in Arizona. Another crop was sorely needed in our state and sugar beets for the production of sugar have been most welcome on this account. We are presently harvesting the last of the 1968 crop in the central Arizona area. The 1968 crop represents Arizona's third year of beet sugar production, and while three years hardly qualifies an Arizonan as an expert, we have learned much about the crop and something about the operation of the Sugar Act.

SUGAR ACT

My first impression was that the sugar program was distinctly different from other farm programs and this impression is still with me. Payments to farmers under the Sugar Act are limited by the "scale-down" provisions of the act so that larger producers receive less per hundredweight of sugar or ton of sugar beets than do the smaller producers. It is my understanding that the conditional payments made to sugar beet farmers come from an excise tax levied upon all processors and refiners and that less money is paid to farmers than the tax collected. In fact, I am told that the tax collected exceeds both the payments and the cost of administering the program, and an annual surplus goes into the general treasury.

There also are other ways that the sugar program differs substantially from other agricultural programs. The allocation of sugar beet acreage to farmers in years when acreage is federally restricted is different than for other crop allocations. A sugar beet acreage allocation is not subject to being leased or sold. There is no traffic in sugar beet acreage under restricted conditions and the individual who earned the entitlement to produce beets must be the individual who uses it. The entitlement is generally nontransferable. Also, the Sugar Act contains provisions for minimum wages and guarantees the payment to the worker, and restricts the use of child labor. Limitations are also placed on sugar sales through the operation of the quota system.

My purpose in dwelling on the unique nature of the sugar program is to emphasize to you our belief that this program must be considered separate and apart from the general farm program. The Sugar Act has existed in essentially its present form since 1934. It has worked well and has frequently been pointed to as model agricultural legislation.

The fact that the Sugar Act already provides for reduced payments to larger producers and for the collection of excise taxes in an amount which exceeds the total cost of the sugar program is sufficient reason to exclude the sugar program from any consideration of payment limitations relating to agricultural commodities. It is my understanding that Members of Congress, who have proposed limitations in payments to farmers under the general farm program, have recognized the unique nature of the sugar program and have excluded Sugar Act payments from the proposed payment limitations presently under consideration by Congress.

I want to emphasize this point concerning payment limitations because California and Arizona would be two states affected by any payment limitations program, which included all commodities. These are two states where many of the same farmers grow both cotton and sugar beets. It should be remembered that California is the largest producer of sugar beets in the nation and Arizona is rapidly coming up the list.

PROPORTIONATE SHARES

With regard to a restrictive acreage program, which appears to be on the horizon for the 1970 sugar beet crop, I should like to urge the Secretary to render an early determination. While the timing of a determination is perhaps of less importance to Arizona and other states in the West than it is to California, an early determination regarding the proportionate shares restrictions will enable all farmers to expedite crop planning and facilitate land leasing and crop financing activities.

There are a number of problems connected with the growing of sugar beets which need continuing attention. The "cost-price squeeze" which confronts most all farmers today is a familiar situation for the sugar beet farmer. I would urge the Secretary to continue to administer the act so that prices for sugar reflect the department's recognition of the farmers' constantly spiraling costs fo production.

There is also a continuing need for cost reduction.

(Continued on page 24)

Tehama-Colusa Canal

By William R. Duckworth

Mr. Duckworth is Agricultural Superintendent for Spreckels Sugar Company in District III, Woodland, California.

The major facility involved in the development of the western portion of the Sacramento Valley is the Tehama-Colusa Canal presently under construction by the United States Department of Interior, Bureau of Reclamation. The canal, as now planned will be 122 miles long, extending from the Red Bluff Diversion Dam to a point in Yolo County south of Dunnigan.

AUTHORIZATION

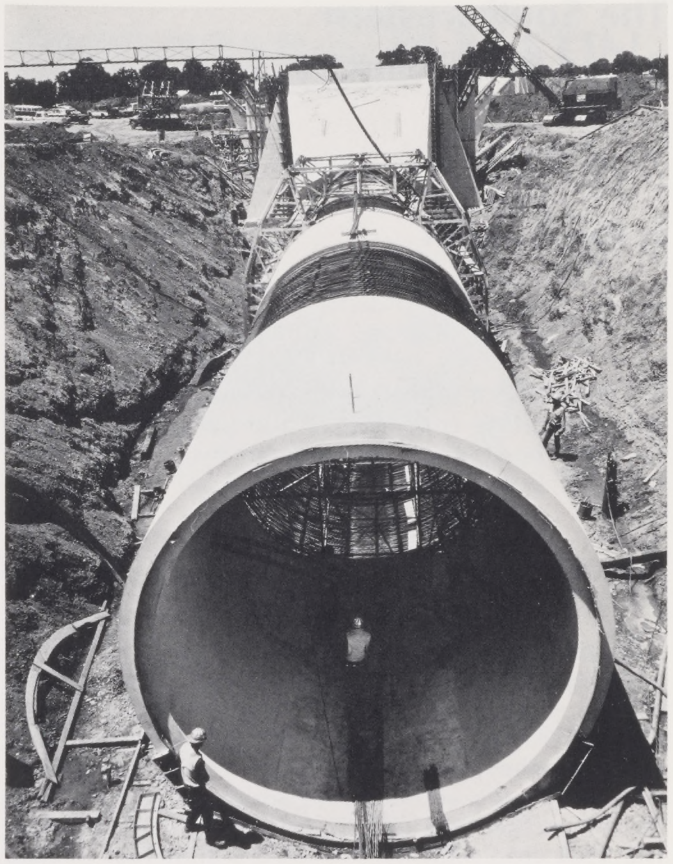
The Tehama-Colusa Canal was authorized in 1950 as one of the Sacramento Valley canals of the Central Valley Project. By 1964 enough delivery contracts had been signed to defray the annual operating and maintenance costs assigned to the irrigation portion of the canal to warrant construction. Construction was initiated on Reach 2 north of Stoney Creek while details of the fish facilities on the upper reach were being perfected.

In 1967 Congress authorized the enlargement of the Canal to provide for future use capacity to permit extension of service to Yolo, Solano and Napa Counties. This extension, known as the West Sacramento Canal, will extend 46 miles from the southern terminous of the Tehama-Colusa Canal to Noonan Reservoir south of Elmira in Solano County.

SERVICE AREA

The Tehama-Colusa Canal service area includes 205,000 irrigable acres which will require a supplemental water supply of 400,000 acre feet a year. Under full development, it is expected that the land will be used for forage crops, field crops, as tomatoes, sugar beets, etc., fruit and nut orchards and a small acreage of rice.

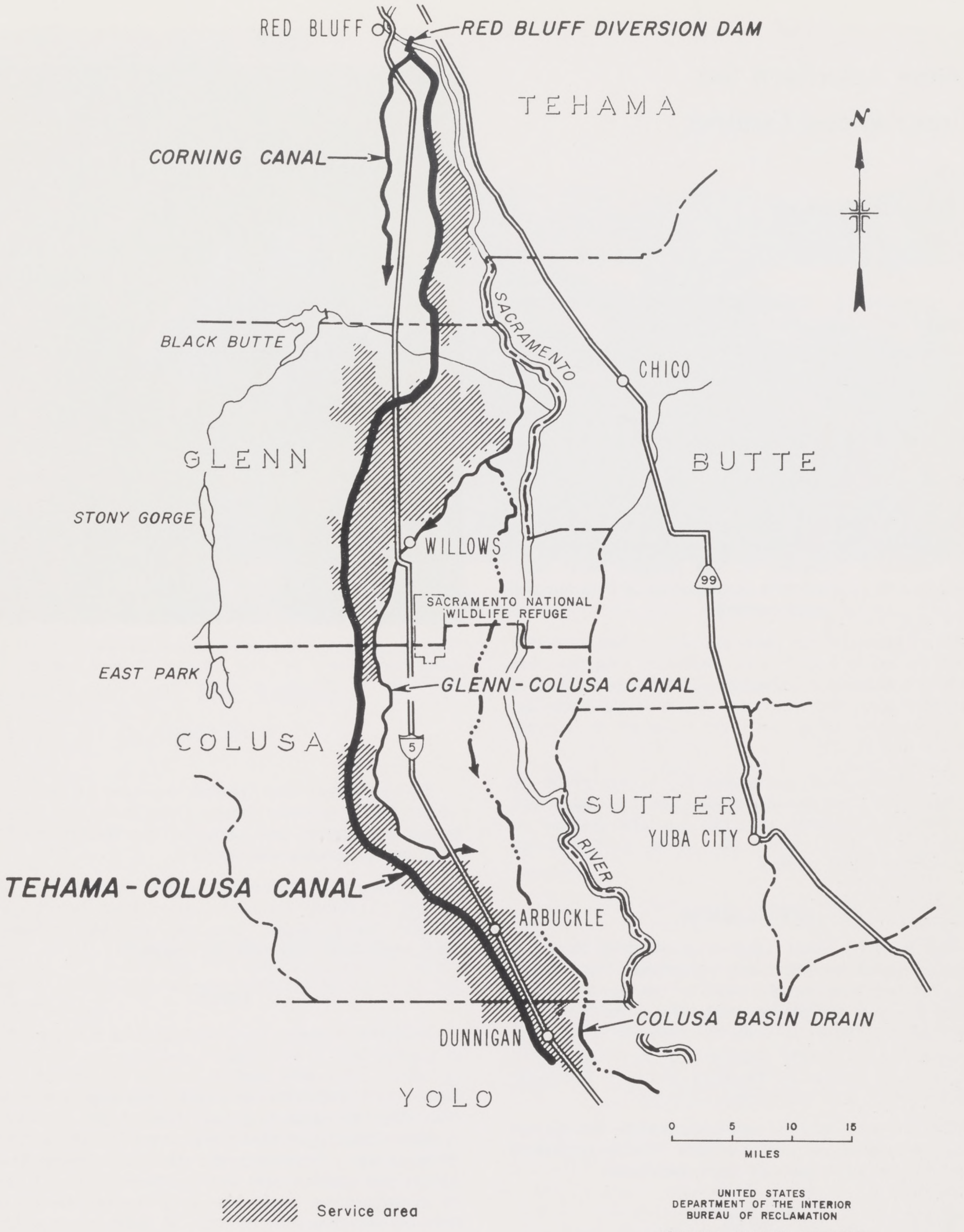
The first award of a contract for construction was made in 1965. Completion of construction of the entire canal is scheduled for 1976. Eight contracts averaging 15 miles in length will be awarded at approximately 12 month intervals. Reach 2 construction is now complete and the lower portion of Reach 1 will be completed in this year. Reaches 3 to 8 will be let for contract starting in 1970 and completing in 1976. The estimated total direct construction cost of the canal, including fish and related facilities, is approximately $100 million.



Barrel section of siphon, reach 1, Tehama-Colusa Canal

FISH FACILITIES

Original studies for the Tehama-Colusa canal considered only the need for an irrigation water supply. However, additional studies have shown that the canal can be used for fish enhancement as well. Under the Fish and Wildlife Coordination Act of 1956, the Bureau of Reclamation is building artificial spawning beds in the upper portion of Reach 1. The temperature of the Sacramento River at the Red Bluff Diversion Dam is well adapted to the propagation of cold water fish such as salmon and steel head and special spawning beds are being developed in this area. The spawning area will be approximately 3 miles long, 100 feet wide with a depth of 6½ feet. The bottom will be covered with 30 inches of a special spawning gravel. Access to the artificial spawning area will be at Oat Creek down stream from the Diversion Dam. Through this specially designed section of the main canal the anadromous fishing of the Sacramento River will be significantly enhanced.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CENTRAL VALLEY PROJECT
SACRAMENTO RIVER DIVISION
SACRAMENTO CANALS UNIT-CALIF

TEHAMA - COLUSA CANAL
LOCATION MAP

602-208-1529

A New Approach For Winter Weed Control

By Richard R. Heimforth

Mr. Heimforth is Field Superintendent for the San Joaquin, Helm and Five Points areas of District IV, Mendota, California.

Weeds pose an ever present problem in sugar beets and other field crops and stifle any efforts towards precision operations as space plantings and mechanical blocking. Don Schramm of San Joaquin, California, however, is well on the way to eliminating this problem. For the past several years Don and Red Top Chemical Company of San Joaquin have been working with an herbicide combination of Pyramin and T.C.A. for winter weed control.

Work started three years ago with a five acre trial which ended in high hopes. Sprinkler irrigation was used to activate the materials. The following year a thirty-five acre field was tried. Again results were just as encouraging using only rain moisture to activate the material.

The choice of Pyramin and T.C.A. was made on the basis that these two materials have the longest half life of all the materials currently available for use on sugar beets. This choice also gives a very broad spectrum of weed control.

APPLICATION

The materials were applied at planting time and no mechanical incorporation was used. Two saddle tanks were placed on the side of the tractor which pulled the sled and planter unit. The tanks contained mechanical agitators to keep the material in solution. (A necessity for proper application). A pump system was used to pressurize the lines going to the spray nozzles which was maintained at 35 P.S.I.

The fan-type nozzles were mounted on the planter units just behind the packer wheels. The spray pattern was adjusted so it gave an eight inch band.

RATE

The amount of material applied per acre consisted of 5 pounds of 80% Pyramin and 7 pounds of T.C.A. Only 20 gallons of water per sprayed acre were used, no spreader was necessary.

Field Superintendent Richard Heimforth observes some of the winter weed control that Don Schramm obtained with Pyramin and T.C.A.

This past year Don treated in excess of 300 acres which had extremely heavy populations of broadleaves and grasses and obtained spectacular control. Little or no stunting was noticed.

Planting and application dates varied from December to March and soils varied from heavy clays to light sandy loams. Rain and sprinkler irrigation were used to incorporate the materials.

COST

With this program Don has found he is not pushed in getting into a wet field to cultivate his beets. He can delay cultivation until he has the proper soil conditions with little worry of weeds emerging in the seed row. After his sugar beets are thinned and cultivated, Treflan is used to provide weed control for the balance of the season. The cost of the materials is about $8 - 9 dollars per applied acre for the Pyramin and T.C.A., $7 - 8 dollars per applied acre for Treflan for a total seasonal weeding bill of $15 - 17 dollars per acre.

In view of the fact that some growers in the same area spent as much as $50 - 60 dollars per acre for hand weeding this year, this program certainly proved worthwhile for Don.

Spreckels Sugar Company's Salinas Factory has never missed a year's production since it was built 71 years ago in 1898. It is one of the oldest factories in the United States and the largest in terms of slicing capacity, some 7200 tons of sugar beets daily.

Spreckels And The Salinas Valley In Perspective

By Byron Larsen

Byron Larsen is District Manager, Spreckels Sugar Company, Salinas, California. The following article is based upon a speech he recently delivered to the King City Rotary Club.

In the latter half of the nineteenth century Claus Spreckels, after rising from a grocery-store clerk to become a dominant refiner of Hawaiian cane sugar on the Pacific Coast, turned his attention to the possibilities of extracting sugar from sugar beets which could be grown in California. He went to Magdeburg in Germany and there he studied the beet sugar industry by working in factories. His training completed, he brought back to California a supply of sugar beet seeds, and selected experts to make trial plantings. By keeping careful records of the results of these plantings, he was able to determine the best potential areas for growing sugar beets, one of which was the Salinas Valley.

He then surveyed the state for possible factory sites, settled on nine, and in 1887 chose Watsonville for the location of his first factory. Claus Spreckels' thoroughness and foresight are underlined by the fact that during the next 60 years a factory was erected on each one of the nine sites he had considered suitable.

Spreckels' Watsonville factory began operation in 1888 under the name of the Western Beet Sugar Company. It produced raw sugar which was refined to pure granulated sugar in his California Sugar Refinery in San Francisco. Each year its capacity was enlarged until in 1896 it processed 155,000 tons of beets and produced more than 19,000 tons of raw sugar.

In 1897 Spreckels formed the company that still bears his name, dismantled the Watsonville factory, and built near Salinas what was then the world's largest beet sugar factory capable of processing a record-breaking 3,000 tons daily. From its first year of operation until the present the Salinas factory has never missed a year's production. It has been modernized over the years and presently has a slicing capacity of 7200 tons of sugar beets per day. Thus Spreckels association with the Salinas Valley and surrounding areas dates back more than half a century.

In addition to the Salinas factory, Spreckels Sugar Company operates four factories. The second factory

And you think receiving stations are crowded now? This picture of Spreckels Sugar Company's Elsa Station was taken in 1908. The station is located on the Spreckels Ranch just north of King City, California.

was built in 1917 at Manteca, California and has a present slicing capacity of 4,200 tons per day. The third factory was built in 1937 at Woodland, California and has a present slicing capacity of 3,800 tons per day. The fourth factory was built in Mendota, California in 1963 and has a slicing capacity of 3,800 tons per day and the fifth factory was erected in Chandler, Arizona in 1966 with a 4,200 ton per day slicing capacity. This is a total slicing capacity of 23,200 tons of sugar beets per day or the equivalent of 1,000 acres of sugar beets.

In addition to Spreckels Sugar Company's four factories there are 6 other factories in California operated by three other companies. California's sugar production accounts for approximately 25% of the total beet sugar produced in the United States. Last year Spreckels Sugar Company accounted for approximately 13 percent of the beet sugar produced in the United States and about 3.5 percent of the total sugar consumed in the United States.

Nationwide there are 12 beet sugar companies who operate some 58 factories in 20 states. Sugar beets for these factories are grown in 23 states.

Spreckels Sugar Company is divided into five agricultural districts each of which has one of the five factories as its operating base. District I, Salinas operates along the coast from Gilroy on the north to Santa Barbara on the south and also takes in the Imperial Valley; District II, Manteca operates in the northern San Joaquin Valley and southern Sacramento Valley extending from Sacramento on the north to Merced on the south; District III, Woodland operates in the Sacramento Valley and contracts sugar beets as far north as Chico; District IV, Mendota operates in the southern San Joaquin Valley from Merced on the north to Bakersfield on the south; and District V operates in Arizona.

Spreckels Sugar Company has been active in land development throughout its history. Spreckels currently owns a ranch at King City comprised of 5,000 acres, 4,100 of which are under irrigation. Approximately 1,000 acres is owned around the Salinas factory site. All these properties are leased except for 450 acres of the Salinas property that is farmed by the company. An additional 4,300 acres is leased and subleased in the Salinas Valley.

THE CHANGING VALLEY

Change is always somewhat resisted and generally during a period of rapid change some people and industries will be adversely affected. The Salinas Valley has certainly experienced many changes over the years which have affected people in the area in one way or another.

Most of the Indians in the area didn't like seeing the missions established. Later, the missionaries didn't

(Continued on page 18-D)

The 1968 Honor Roll

We proudly publish the names of growers whose 1968 sugar beet crop exceeded 25 tons per acre in the Salinas District. The names are listed in descending order of pounds of sugar per acre. The Fall issue of the Bulletin will contain the names of those who earned a place on the Honor Roll from the Mendota, Manteca and Woodland Districts.

DISTRICT I, SALINAS

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Schween Bros.	17	50.40	16,844
Arrow Lettuce Co.	16	48.00	16,598
Growers Prod. Dispatch	30	50.61	15,770
Jim Fanoe & Son	53	46.48	15,255
West Coast Farms	30	49.08	14,979
Tom Hambey & Son	38	52.84	14,827
Franscioni & Griva, Corp.	38	47.62	14,648
Corda & McDougall	21	44.93	14,180
Hansen & Fowler	58	42.13	13,996
E. John Nielsen Co.	20	39.61	13,959
Richard Morgantini	60	42.10	13,800
Merrill Farms	23	42.38	13,680
W. M. Sullivan	25	41.02	13,496
Soilserv, Inc.	1	48.46	13,491
B. E. Johnson	39	40.58	13,464
Growers Prod. Dispatch	37	46.52	13,314
Cal. Coastal Farms, Inc.	159	46.08	13,308
J. J. & H. Violini	19	43.41	13,240
Latasa Bros.	63	39.78	13,199
Turri Bros.	59	41.94	12,934
T. O. Tomasello Co.	20	38.09	12,829
James H. Watson	33	38.68	12,741
J.P.S. Abeloe & Sons, Inc.	80	42.91	12,607
Merrill Farms	45	37.11	12,588
Robert J. Thorp	18	38.21	12,518
A. J. Glau & Son	28	39.89	12,470
Toro Farms	136	36.17	12,385
John Gardoni	45	39.69	12,240
Tom D. Bengard	20	39.33	12,145
Tom Da Rosa	46	40.44	11,962
Henry Signorotti	10	40.63	11,953
Owen T. Rice & Son, Inc.	71	36.23	11,949
Wiley Farms, Inc.	35	39.23	11,949
Francis H. Rianda	27	39.14	11,938
Latasa Bros.	89	36.34	11,920
E. John Nielsen Co.	26	36.23	11,876
Thomas B. Burnett	23	41.17	11,840
Schween Bros.	33	34.52	11,682
Jim Fanoe & Son	104	35.19	11,676
H. E. Widemann	27	35.97	11,661
Frank Taylor	45	39.19	11,616
Walter Herbert	45	36.95	11,565
Steve Pervetich	9	39.96	11,556
Fanoe Bros. & Sons	21	38.22	11,527
Treno Romo	28	34.38	11,524
Joseph B. Silva & Sons	15	35.41	11,508
San Vincente Ranch	53	36.67	11,478
Schween Bros.	34	34.91	11,409
F. J. Martin	23	39.26	11,338
Peter A. Stolich Co., Inc.	43	39.08	11,294
Calif. Land & Cattle Co.	66	37.04	11,290
H. & E. Christensen	14	36.77	11,281
Arthur F. Blomquist	55	34.96	11,222
B. J. Marks Family	124	35.54	11,124
Harless Bros.	30	36.82	11,105
Merrill Farms	43	36.51	11,084
Wm. D. Crinklaw	100	33.96	11,057
Martinus & Martinus	63	34.36	11,030
H. & E. Christensen	14	33.71	11,016
J. A. Ferrasci	34	38.49	11,008
Fanoe Bros. & Sons	57	33.81	10,981
Bellone & Del Chiaro	17	32.44	10,971
Ning Young & Son	17	36.46	10,967
L. & J. Farms	22	34.24	10,964
Jim L. Fultz	56	33.32	10,816
Henry E. Corda	17	32.89	10,755
Martinus & Martinus	87	33.41	10,705
Elmer Johnsen	98	35.80	10,654
Merit Packing Co.	153	32.57	10,520
LaTasa Bros.	61	32.14	10,465
Wm. D. Crinklaw	184	31.11	10,341
United Farms Co.	25	34.17	10,230
W. W. Johnson & Son	68	33.33	10,199
Kishimura Bros.	47	29.17	10,192
Leo A. & Robert L. Meyer	30	34.63	10,140
Valley Packing Co.	32	32.32	10,084
Davies & Lumsden	85	32.71	10,055
Davies & Lumsden	104	32.13	10,044
Gill Bros.	35	35.97	9,964
Owen T. Rice & Son, Inc.	89	29.52	9,925
S. Braga & Sons	40	30.14	9,922
Fanoe Bros. & Sons	121	31.41	9,882
Robert E. Mathias	24	32.51	9,877
Jack A. Hayes	408	36.54	9,858
Joe P. Alves	15	40.39	9,831
J. M. Thorne	24	33.23	9,770
Robert Trafton Co.	19	38.39	9,766
Salaberry & Giudici	38	28.31	9,756
Peter A. Stolich Co., Inc.	72	30.45	9,701
Franscioni & Co.	12	29.12	9,656
Manuel Baliel	55	25.79	9,645
D'Arrigo Bros. Co. of Calif.	15	30.08	9,638
Earl Fiscalini	28	34.20	9,521
Joe P. Alves	24	36.46	9,494
Manuel Baliel	31	27.12	9,465
Silveria Bros.	42	33.48	9,448
Jack A. Hayes	64	32.85	9,402
E. John Nielsen Co.	20	28.94	9,382
Roy Fultz	45	31.41	9,366
Botelho Bros.	16	30.45	9,330
Gularte Bros.	19	29.86	9,310
Bruce Church, Inc.	38	41.26	9,267
David R. Little	36	28.75	9,258
Robert Heess	21	30.36	9,211
L. C. H. Company	27	31.67	9,203
Newhall Land & Farming Co.	76	27.10	9,154
James A. Petit	30	28.89	9,135
A. F. Silveira & Sons	36	31.16	9,111
Yamanishi Farms	10	32.15	9,079
John Gardoni	316	31.38	9,037
Fanoe Bros. & Sons	145	28.27	8,933
Major Farms, Inc.	51	29.98	8,904
Spreckels Sugar Co.	74	30.87	8,860
John & Bob Corda, Jr.	18	30.34	8,841
Bennie Yamane	62	37.08	8,840
L. & J. Farms	23	31.10	8,826
Rianda Bros.	26	29.79	8,788
Manuel Baliel	115	31.10	8,758
Wm. D. Crinklaw	70	28.60	8,752
Emil C. Meyer	81	30.29	8,730
Peter A. Stolich Co., Inc.	36	32.55	8,710
Allan W. Johnson	31	26.31	8,693
Bruce Church, Inc.	28	28.83	8,684
A. L. Clement & Sons	111	26.97	8,630
Ernest R Binsacca	6	25.21	8,612
Anselmo Pura & Son	16	27.96	8,573
Consolidated Growers, Inc.	28	34.30	8,554
H. & C. Overfelt	73	26.09	8,469
United Farms Co.	37	33.25	8,439
Davies & Lumsden	18	28.25	8,402
Robert Trafton Co.	21	25.07	8,388
Elwood Fontes	63	27.17	8,385
Valley Packing Co.	26	28.88	8,381
D'Arrigo Bros. Co. of Calif.	42	26.44	8,360
Earl Fiscalini	26	27.77	8,314
Schween Bros.	37	26.83	8,280
Consolidated Growers, Inc.	33	30.65	8,239
W. E. Foletta	25	33.89	8,201
Martin R. Ramseier	28	30.31	8,135
Maynard H. Frudden	37	30.27	8,118
Bruce Church, Inc.	33	31.54	8,043
San Vicente Ranch	21	37.71	8,040
J. M. Thorne	2	28.20	8,009
United Farms Co.	88	26.44	7,995
Tom DaRosa	128	29.04	7,963
Martella & Buzzini	25	29.85	7,612
Martin R. Ramseier	56	26.54	7,580
Ambrosini & Pisoni	19	26.10	7,313
Botelho Bros.	17	25.32	7,231
Maynard H. Frudden	45	28.65	7,088

SPRECKELS AND THE SALINAS VALLEY

(Continued from page 18-B)

appreciate the Mexcian Government taking over their farming and cattle operations and in turn the Spanish Rancheros hated to see the "Gringos" take over their holdings.

Most of the dairymen in the Salinas Valley resented row crop farming when it was introduced and growers who farm only a single crop such as beets, beans, onions, garlic, and tomatoes now find it difficult to pay the high rents that are currently being charged for land.

LAND RENTALS

Irrigable land in the Valley for instance is presently renting from $40 per acre to over $230 per acre. Growers are paying from $150 to $230 per acre for about 10 percent of the irrigated ground.

One of the major reasons for this shift from the more basic forms of farming to a highly intensified crop economy is the Valley's very favorable climate. A wide range of crops can be grown and are generally of superior quality and high in production.

At the present time there are approximately 145,000 acres of irrigated cropland within the Valley. This acreage has been fairly constant for the last 20 years. New irrigated land development has kept up, so far, with the loss of acreage to towns, cities, and freeways.

The nationwide trend of larger and more extensive farms is certainly occurring in the Salinas Valley. Over the last seven years, approximately 25 to 30% of the Valley's smaller growers have ceased operating and the land they farmed is either being leased or bought by larger operators. Many of these small operators retired and their sons didn't want to continue their farms while the risk associated with farming became too great for others.

OPERATOR CHANGES

There have been some recent changes among some of the larger operators in the Valley. The Bud Antle Company has given up their leases in the Salinas Valley and is moving its main branch headquarters to Arizona. The growers who assumed Antle's leases will continue raising vegetables on the land. Antle's packing sheds will remain in operation. United Fruit Company has purchased several large grower-shipper operations and CBK, a Kansas Ctiy corporation, is now operating in the Valley as is Desert Farms from the Imperial Valley. The Purex Corporation is expanding its farming operations and the Almaden Wine Company has purchased and cleared land in Monterey County for wine grapes.

Farming in the Valley today certainly favors a larger operation. A grower needs a large variety of crops to reduce his risk in case one crop produces poorly or market prices drop below the break even level. In the case of the lettuce grower, it isn't always possible to hit a good lettuce market. He needs to be harvesting lettuce as many days out of the years as possible in order to hit the high markets.

Taxes on farm property in the Valley have increased at a rapid rate. It will soon be necessary to have a change in our tax laws because spiraling taxes are forcing rentals up to a point where a large number of crops can no longer be economically grown. Land taxes need to be based on the value returned, not on the sale of adjoining property.

NEW DEVELOPMENTS

In addition to the higher costs of operating and lower profit margins, Salinas Valley growers are faced with the possibility of increased competition from new areas. In excess of 500,000 acres of farming ground is being developed at the present time in the San Joaquin Valley. New developments in Northern California will also add a substantial amount of acreage. This land is suitable for production of many of the crops currently raised in the Salinas Valley.

In order for the farmers in the Salinas Valley to continue raising the crops they grow today and compete with the production from this new acreage, yields will have to be increased and the amount of hand labor decreased beyond present levels. Efficiency will certainly be the order of the day.

Minimum Trip Tillage--A New Concept For Sugar Beets

By Roy E. Van Gorkom

Mr. Gorkom is the Sidewinder Product Manager, John Bean Division of the FMC Corporation, San Jose, Calif.

Rain compacted soil, limited planting time, weed problems and costly labor are causing many sugar beet growers to seriously consider the advantages of new minimum trip tillage equipment now being offered on the market. Good seed bed preparation, the use of thoroughly incorporated herbicides, and mechanical thinning can yield the sugar beet grower a substantial savings in labor. Most growers experience greater yields per acre when sugar beets do not have to compete with weed growth. In addition, the combining of operations into a minimum number of trips across the field reduces costs and soil compaction.

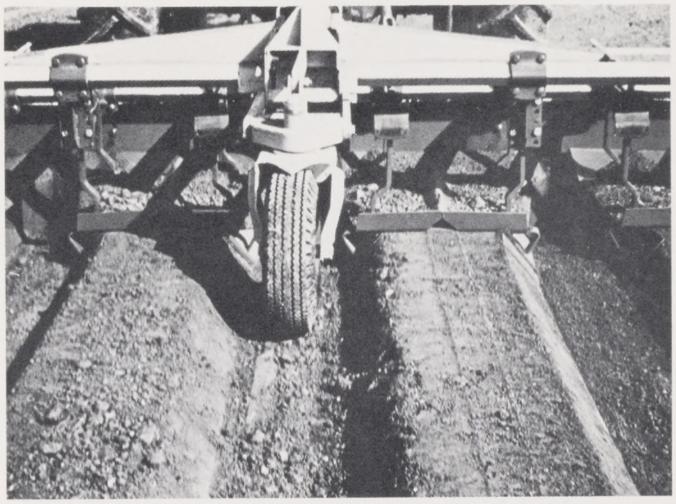
Rotary tillage equipment has been used many years, but with the introduction of higher agricultural labor costs, the John Bean Division of FMC Corporation decided to develop their Side-Winder tilther into something more than a one purpose tool. Since "minimum tillage" could be defined as pushing a pencil in the ground and dropping a seed in the resulting hole, they felt the term would not adequately describe their objective. "Minimum TRIP Tillage" was then adopted as the term to describe Side-Winder's adaptability to combine operations.

Minimum trip tillage is designed specifically to eliminate separate trips for discing, bed shaping, fertilizing, herbicide incorporation, mulching and seed planting — by combining all into a single trip across each field. In most soils growers find their Side-Winder can be used after deep plowing. Occasionally large clods must be broken up or land planing is needed to provide best results.

TIMING

There is no question that time is of the essence at seed bed preparation time, particularly when late winter rains delay soil tillage beyond normal spring seeding dates.

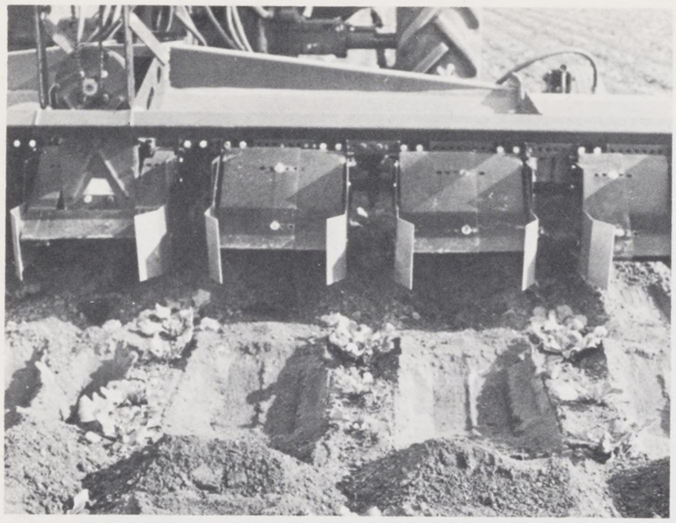
With minimum trip tillage such a delay is minimized. For the minute the field is dry enough to work, the minimum trip tillage farmer is able to move right in, work, prepare and plant the seed beds in a single trip.



Even some of the heavy clay soils of the San Joaquin Valley can yield well shaped beds with the side-winder system.

Four row minimum trip side-winder set-up with planters and herbicide tanks near Buckeye, Arizona.

This side-winder unit is incorporating Treflan between the rows in a "contour" pattern to retain a blanket of treated soil below the furrow bottom.



Contour post-emergence herbicide pattern while cultivating. The curved plant shield extensions are available to keep treated soil from falling on top of the beets.

This grower is shown checking the depth of "contour" incorporation in the furrow area.

Minimum trip tillage equipment comes in a variety of widths, designed to meet most farm requirements — and pocketbooks allowances. It is expensive equipment, and often requires a tractor with greater power than has previously been used, to pull this heavier equipment.

With Side-Winder, for instance, available in widths ranging from 90 inch up to 240 inch, there is a size to fit just about all farming operations from the small grower on up. Most sugar beet growers find either the 126 inch for four row planting or the 180 inch for six row planting meet their needs.

When planting, a carefully controlled strip of pre-emergence herbicide can be incorporated. After emergence, the Side-Winder can be converted for use in cultivation and to incorporate post-emergence herbicide as well as injecting fertilizer — all in one trip through the field. At the same time, furrow shapers attached to the rear tool bar of the Side-Winder repositions the loosened soil back up on the sides and top corners of the beds, restoring the beds to their original squared off condition, for greater ease of harvesting and providing cleaner furrows for greater irrigation efficiency.

To provide "contour" incorporation along the top of the bed and down into the furrow, various length blades are available. This provides an even cover of treated soil even in the bottom of the furrows. By chemically controlling weeds through thorough herbicide incorporation and by elimination of bothersome clods, mechanical thinning can be used. Weeds are not competing with the beets and a more uniform stand usually results.

A comparative study made by averaging various cultural practices in various areas, and comparing these averages with the results of combining separate operation under the minimum trip tillage concept, showed a possible savings of over $30 per acre, and a time savings of over 14 hours per acre. A grower can make his own personal study by listing his individual operations, determining his cost per acre for each operation and then deciding which of the operations can be combined into a single pass through his field.

With the continued decline of the available labor market and the increased availability of mechanical means to do the job, more and more progressive growers are investigating the advantages of the minimum trip tillage concept.

COST COMPARISON — SUGAR BEETS

CONVENTIONAL COST

Operation	Time/ Acre	Cost/ Acre
Plow	.5	$ 4.28
Disc 2X	.5	4.64
Land Plane 2X	.8	6.11
List & Cultipak Beds	.3	1.81
Sled, Plt., & Fert.	.3	1.99
*Thinning	.2	.88
Weeding 2X	12.0	16.50
Ditching 3X	.2	.97
Irrigating 8X	10.0	14.70
Fertilizing	.3	1.39
Cultivation 3X	.5	2.35
Misc. Labor	.5	.88
Mach. Harv. & Hauling	.5	45.00
TOTAL	26.6	$101.50

SIDE-WINDER COST - RC 180

Operation	Time/ Acre	Cost/ Acre
Incorporate Residue	.33	$ 2.77
Prepare Seedbed, Fert., Apply Herb. & Plant	.2	2.54
Thin	.2	.88
Cult., Fert., Herb. Appl.	.2	2.39
Ditching 3X	.2	.97
Irrigating 8X	10.0	14.70
Cultivation 1X	.16	1.25
Miscellaneous Labor	.5	.88
Mach. Harvest & Hauling	.5	45.00
*Land Plane		
*Subsoiling		
TOTAL	12.29	$71.38
TOTAL SAVINGS		$30.12
TOTAL SAVINGS (HRS.)		14.31

* When necessary add 0.8 hr. and $6.11 for Land Planing and 0.4 hr. and $3.26 for Subsoiling.

* A space planting was used thus reducing thinning cost.

Oppel, Hesston Introduce New, Improved Beet Harvesters

Oppel, Inc., a subsidiary of Nationwide Industries, Inc., recently announced major improvements and additions to its 1969 sugar beet harvesting line. The world's largest manufacturer of sugar beet harvesting equipment, Oppel produces three basic types of beet harvesters - direct loading type, tank type and semi-tank type - which accommodate a variety of row spacings, plus a line of beet defoliators.

All Oppel harvesters are equipped with patented lifter wheels which are available in three styles - traction-rim, bolt-on rim, or spike - to meet a wide variety of soil conditions.

A hydraulic row finder is standard equipment on all harvesters and makes it possible to guide the lifter wheels to all beets in a row. A special proximity sensor follows the beets automatically, permitting them to be lifted clean with a minimum loss due to slicing or tail breaking.

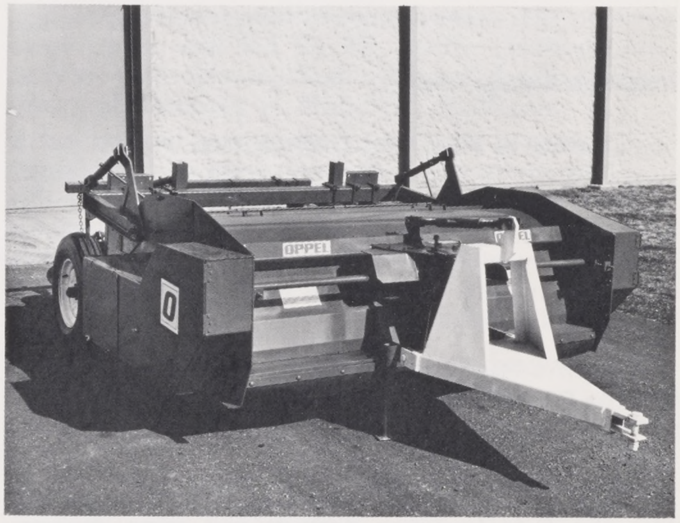
A large cleaning area is provided in reink beds available on all beet harvesters. Designed to maximize separation of beets from tare, the beds are protected from rock damage by patented rubber spacers located between reink stars. The model "350" tank-type harvester can accommodate two 20" to 40" rows, three 20" to 24" rows and bed rows. The "350" also has a 7500 lb. capacity storage tank with a 24" wide chain bottom. For more information, contact Oppel, Inc., P.O. Box 2894, Boise, Idaho 83701.

Hesston - Extra weight and strength are some of the new characteristics of Hesston Corporation's new model 495 direct loading beet harvester.

The harvester features an entirely new reink concept. Beets get their first dirt removing wallop from steel flail paddles, then from steel plate, wobble-action reinks. The next two rows in the reink bed are open-center, spiral reinks which pinch off more stubborn dirt. Still another row of plate reinks kicks off remaining dirt before the beets are passed to the grab rolls. Finally, two new spiral and two smooth rolls tumble and turn the beets for a final polishing.

A variety of three-row and four-row spacings is possible. For more information, contact Hesston Corporation, Hesston, Kansas.

Oppels improved version of the "350" tank-type harvester.



Oppels line of defoliators includes a triple drum model.

Hesston's new 495 direct loading harvester.

Agricultural Staff Notes

Selected Notes And Observations From Spreckels Sugar Company's Agricultural Research And Field Staffs.

Irrigation Check Strips

Growers in the Octol District have worked out a novel system for more efficient irrigation of their sugar beet fields. First, one must understand that in this area farming is done on a square mile basis. Pipelines are generally laid out on one-half or one mile centers and the tendency is therefore to run irrigation water the same distances.

Since water always seems to run unevenly in the furrows periodic checking in the center of the field is necessary to make sure all rows carry water to the end of the field and sub-properly.

Once the sugar beets produce lush tops walking into the field becomes difficult and some growers found that their irrigators weren't checking the center of the field. Consequently, areas in the field weren't getting enough moisture.

To eliminate this problem the following program was developed. Assuming a field is ½ mile in length, just prior to thinning, or at the latest just after thinning, a four foot disc is used to cut a strip across the beds at a distance of 1320 feet from the head ditch or ½ the fields length. A similar strip is also disced out at 400 to 500 feet below the first pass or ¾ of the fields length. Doing this early gives the growers an opportunity to rebuild these beds in subsequent cultivations. These access strips once established afford the irrigators and the grower an opportunity to observe the progress of the water in the center of the field and to build check dams where needed. This is the best means we have found to get irrigators out of their pickups and into the sugar beet field.

Vernon Sherwood - Visalia

Nutgrass

Growers in the Southern San Joaquin Valley who farm the lighter soils are experiencing an ever-increasing problem with nutsedge, more commonly known as nutgrass.

Nutsedge reproduces from both nutlets (or tubers) and seeds. The seed germinates about 75% and is spread by water. The nutlets are spread by tillage tools which enables the weed to spread rapidly. Even if its top growth is killed, an individual nutlet has several "eyes" like a potato and can send out another plant.

Harold Kempen, Farm Advisor for Kern County, states the most common variety found in Kern County is yellow nutsedge, but that purple nutsedge is also found.

Yellow nutsedge can be identified by the presence of a smooth, round tuber at the end of the root which is almond-flavored. Purple nutsedge seed is not usually viable and is spread primarily from the many tubers it produces.

Nutsedge has increased in recent years because it has been allowed to grow unchecked in some crops and because some of the newer herbicides being used, especially in cotton, eliminate any competition it might have from other weeds.

Rotation is an effective way to control nutsedge. Winter grains, followed by summer fallow and deep (14") plowing will effectively kill purple nutsedge. Crops such as alfalfa hay, early planted sugar beets, milo, and corn will successfully compete as long as they are growing vigorously. Care must be taken to prevent yellow nutsedge from going to seed either on ditchbanks or in fields.

(Continued on page 24)

Agricultural Staff Additions

Eddy J. Lazaroti recently joined Spreckels Sugar Company's Agricultural Staff at Mendota as an Assistant Field Superintendent.

Mr. Lazaroti is a native of San Joaquin, California and attended Fresno State College where he majored in Plant Science. He received the Security Seed Companys Agriculturist Award as the College's most outstanding Agronomy student.

He is a member of the American Society of Agronomy, the Crop Science Society of America, and the California National Guard.

Mr. Lazaroti, his wife Norma and daughter Deanna reside in Fresno, California.

Lawrence W. Ellis is the newest addition to Spreckels Sugar Company's Agricultural Staff at Manteca, California. As Assistant Field Superintendent he will work with the Agricultural Research and Field Staffs.

He hails from Woodland, California and attended Fresno State College where he majored in Zoology.

Mr. Ellis and his wife Ann will reside in Manteca.

Eddy Lazaroti

Larry Ellis

Jeff Stober

Jeff L. Stober recently joined Spreckels Sugar Company's Agricultural Staff at Woodland as an Assistant Field Superintendent.

A native of California he attended Chico State College where he majored in Agri-Business. His previous employment included the Mt. Adams Orchard Company in White Salmon, Washington and the Roy Reigels Chemical Company in Woodland, California.

Mr. Stober and his wife Janis reside in Sacramento, California.

Dr. McFarlane Named U.S.D.A. Sugar Beet Leader

Dr. John S. McFarlane has been appointed the Leader of Sugarbeet Investigations in the Agricultural Research Service of the United States Department of Agriculture. In this position he will be responsible for research programs on a wide range of production problems in cooperation with State, industry, and other Federal agencies in all sugar beet-producing areas of the United States.

Dr. McFarlane is holder of a B.S. degree from Montana State University and obtained his Ph.D. degree from the University of Wisconsin in 1943. He then joined the staff of the University of Hawaii, where he was involved in tomato breeding. In 1946 he joined Sugarbeet Investigations and commenced his research on the crop at Salt Lake City, where he worked with the late Dr. F. V. Owen. Since 1947, Dr. McFarlane has been at the U.S. Agricultural Research Station, Salinas, California. His research has been concerned with the development of sugar beet breeding lines and varieties adapted to the West Coast area. The most recent product of this research has been a high performing monogerm variety that combines resistance to bolting, curly top, and virus yellows.

He has published more than 50 scientific papers on sugar beet breeding. In 1966 he received the Meritorious Service Award from the American Society of Sugarbeet Technologists and is a Fellow in the American Association for the Advancement of Science. He was a participant in the USDA Superior Service Award for developing the monogerm sugar beet.

Dr. McFarlane

Dr. McFarlane is now on temporary duty at the U.S. Department of Agriculture Plant Industry Station in Beltsville, Maryland. He will return to Salinas after December to serve as Leader of Sugarbeet Investigations and Superintendent of the U.S. Agricultural Research Station.

SOUTHWESTERN SUGAR BEET INDUSTRY

(Continued from page 15)

Therefore, the search for improved sugar beet varieties, for improved disease resistance, for chemical weed control and control of crop pests must continue. There must be a constant up-grading of farm equipment with the object of reducing labor requirements and the consequent lowering of crop production costs.

A specific and high priority problem in sugar beets, which is common in Arizona and California is virus yellows. The green peach aphid is the vector for this virus disease in sugar beets. Continuation of research for means of controlling the vector and in the development of sugar beet varieties that are resistant to the disease is a must.

The costs of growing sugar beets in relation to returns received are such that the crop can be profitable only if yields and sugar content are improved. Therefore, continued varietal research with the objective of improving yields and sugar content are of utmost importance to the financial well being of the industry.

Also, the dramatic increases in labor costs and the severe shortage of labor increase the urgency of chemical weed control research. While chemical weed control has made great strides in recent years, the knowledge of proper application and the effects of temperature and soil moisture are woefully lacking. Research in this field will do much to aid us in the final mechanization of this crop.

In this regard I wish to stress the importance to all of agriculture the necessity for adequate planning and funding to assure staffing and continuity of federally supported agricultural research.

FINANCING

The investment in a crop of sugar beets is significantly higher than for most field crops and, thus, the farmer's need for crop production money is a paramount consideration. The department has held that the conditional payments made under the act can be made only to the grower and cannot be assigned to others. In many instances this is a deterrent in obtaining adequate financing.

I would urge the department to review the payment provisions of the Sugar Act and its regulations, and would hope that some means might be found to make it possible to make the payments assignable. Such a change would assist greatly in obtaining adequate financing.

When I was first asked to make this presentation, I sought the counsel of fellow farmers and other interested parties in the industry, in order that I might convey to you, Mr. Secretary, what would be a representative concensus of the group.

I would like now to briefly touch upon an area of concern that is not limited to the production of sugar beets, but to the production of all crops in this country. In discussing with fellow farmers, whose interests are not limited to the production of sugar beets, the problems of agriculture in general, and their possible solutions at the federal level, the comments I received ranged all the way from, "tell them to use a sharp knife", to, "there are no problems in agriculture that parity in the market place would not resolve". The latter, of course, is what we have been seeking to accomplish for many years, but there is some apprehension in the farm community that many members of the Congress and the Administration are not interested in seeing that the farmer receives a fair return on his labor and investment. I do not share this view, as far as the Administration is concerned, but I think we must admit that we cannot hope to achieve parity in the market place if our production costs continue to reflect the high costs of labor, taxes, services, supplies and equipment in this country, and the prices we receive for our products are those in the world market place, where production costs are considerably lower. The production of many high labor requirement crops has moved out of the country and this movement will continue as long as foreign production is allowed to compete with our locally produced crops. This will have a detrimental effect on our whole agri-business economy, and could be disastrous for the country in times of national emergency."

AGRICULTURAL STAFF NOTES

(Continued from page 22)

Herbicides have been tried for the control of nutsedge but by in large haven't been completely satisfactory. The use of an herbicide in conjunction with a crop that will compete with nutgrass however can result in effective control.

Eptam has achieved fair results in potatoes. Tillam and RoNeet will hold nutsedge in check for awhile in sugar beets, but must be followed with Eptam in the water to hold it back the balance of the season. Some work has been done with Ansar in cotton this year, but results have been rather poor due to the cool spring and some stunting has occurred. MSMA and DSMA have reportedly been used successfully in the Coachella Valley to provide control up to lay-by time in cotton.

Carlton Schaffer - Bakersfield

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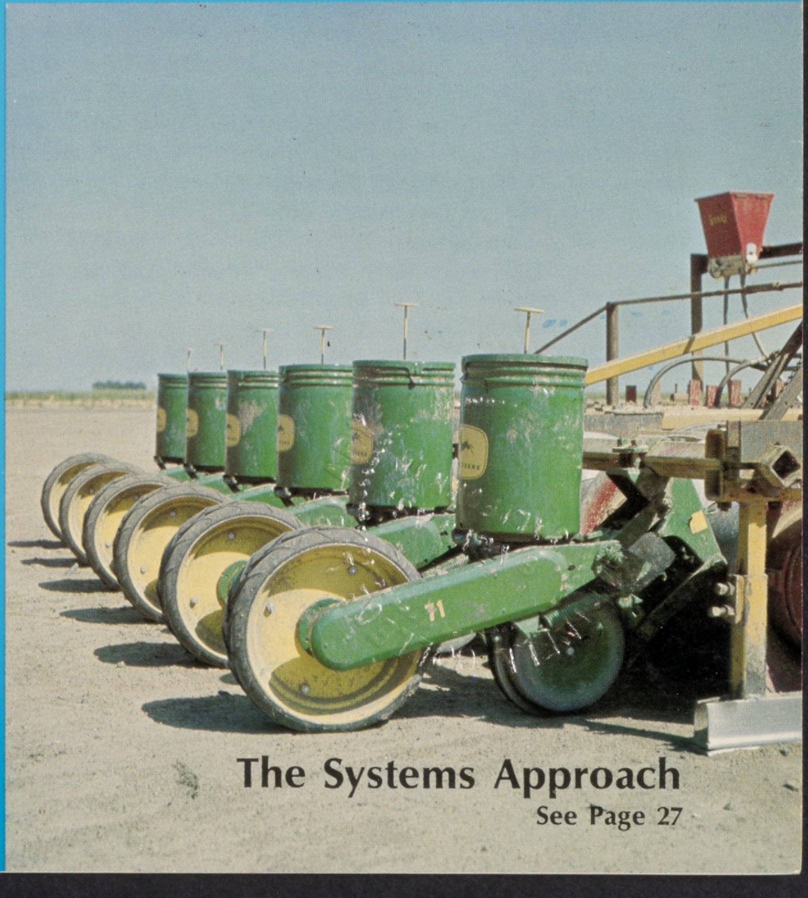
SPRECKELS SUGAR BEET BULLETIN

PUBLISHED AS A SERVICE TO SUGAR BEET GROWERS BY THE SPRECKELS SUGAR COMPANY



The Systems Approach

See Page 27

General News and Comments

1970 Sugar Beet Acreage. The U.S. Department of Agriculture has announced a national sugar beet acreage requirement of 1,450,000 acres for the 1970 crop. This represents an approximate 12½ percent reduction from 1969's 1,660,000 acres. In 1968, national acreage was 1,495,000 acres. The government imposed acreage restrictions for the 1970 crop to avoid excess beet sugar production. Californias share of the national acreage for 1970 crop year will be 293,290 acres or slightly in excess of 20 percent of the total. Arizona's allocation will be 26,845 acres or just under 2 percent.

California Leads Nation. California leads the nation in beet sugar production. For the last five years California has produced on the average approximately 25% of the nations total supply of beet sugar. Some of the other major states include Colorado with 14.6 percent, Idaho with 10.6 percent, Minnesota with 6.5 percent, and Washington with just under 6 percent.

Food Is A Bargain. Even though food prices have gone up consumers will spend a smaller percentage of their disposable income on food at home according to the U.S.D.A. Disposable income is projected to rise 6 to 7 percent this year, while food prices go up perhaps 4.5 percent. Last year Americans spent only 16.8 percent of their disposable income for food and the percentage will be even lower this year. They will spend less on food proportionate to their income than they have ever spent, and less than any other people have ever spent anywhere in the history of the world. In 1950, 23 cents of the consumers disposable income dollar went for food. Today, it takes even less, only 17 cents out of each dollar. Comparably, Western Europeans today spend 25 to 30 cents of each disposable dollar for food and Asians, 75 to 80 cents.

Farm Output. Farm output has increased 22 percent since 1960 largely due to research technology. But half of this gain was absorbed by an 11 percent population increase. This increased production came in spite of farm prices being below World War II levels; farmers costs being up 21 percent in the last 10 years alone and per capita farm income lagging 25 percent behind that of non farm.

Output per man-hour on the farm increased 82 percent between 1957-59 and 1968. In 1968, one U.S. farm worker supplied food and fiber needs of 43 persons, whereas in 1957-59 the needs of the 23 persons were met.

Sprinkler Irrigation. Approximately 7.6 million acres in the United States are now irrigated by sprinkler according to the U.S. Bureau of Reclamation. This represents a jump of over 4 million acres in the last decade. From 1958 through 1967, the Nation's total irrigated acreage climbed from about 36 million acres to more than 45 million acres. The rise of sprinkler use over the same decade was a phenomenal 130 percent increase.

SPRECKELS SUGAR BEET BULLETIN

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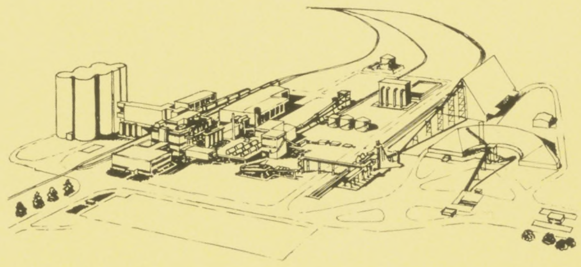
VOL. 33 FALL & WINTER, 1969 Nos. 3 & 4



Gerald Nordstrom	*Editor*

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Spreckels Sugar Beet Bulletin is published quarterly by the Agricultural Department of Spreckels Sugar Company as a service to its growers. Mention of specific methods, devices and implements does not constitute an endorsement by the Company. Please address all communications to: Spreckels Sugar Beet Bulletin, P.O. Box 325, Mendota, California 93640. Please include your zip code.

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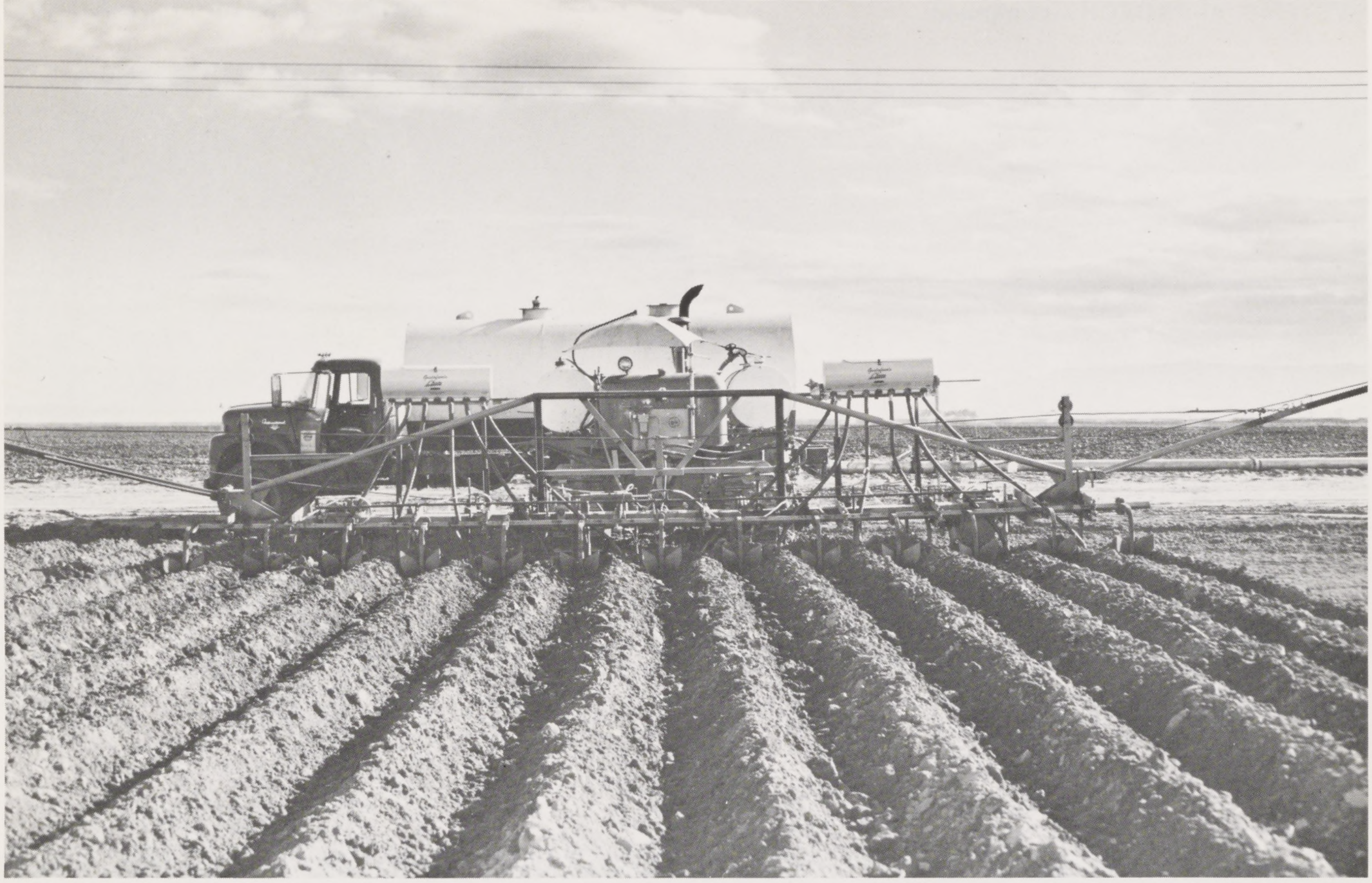
Davis, California 95616

Cover Comment: The equipment pictured on the cover is typical of that used by some growers who are striving for complete mechanization. The approach they are using can be called "The Systems Approach" which is discussed in the article on page 27.



This Melville E. Willson Co. rig lists twelve 30 inch beds, injects phorate (Thimet) and applies nitrogen all in one operation.

The Systems Approach In Sugar Beet Culture

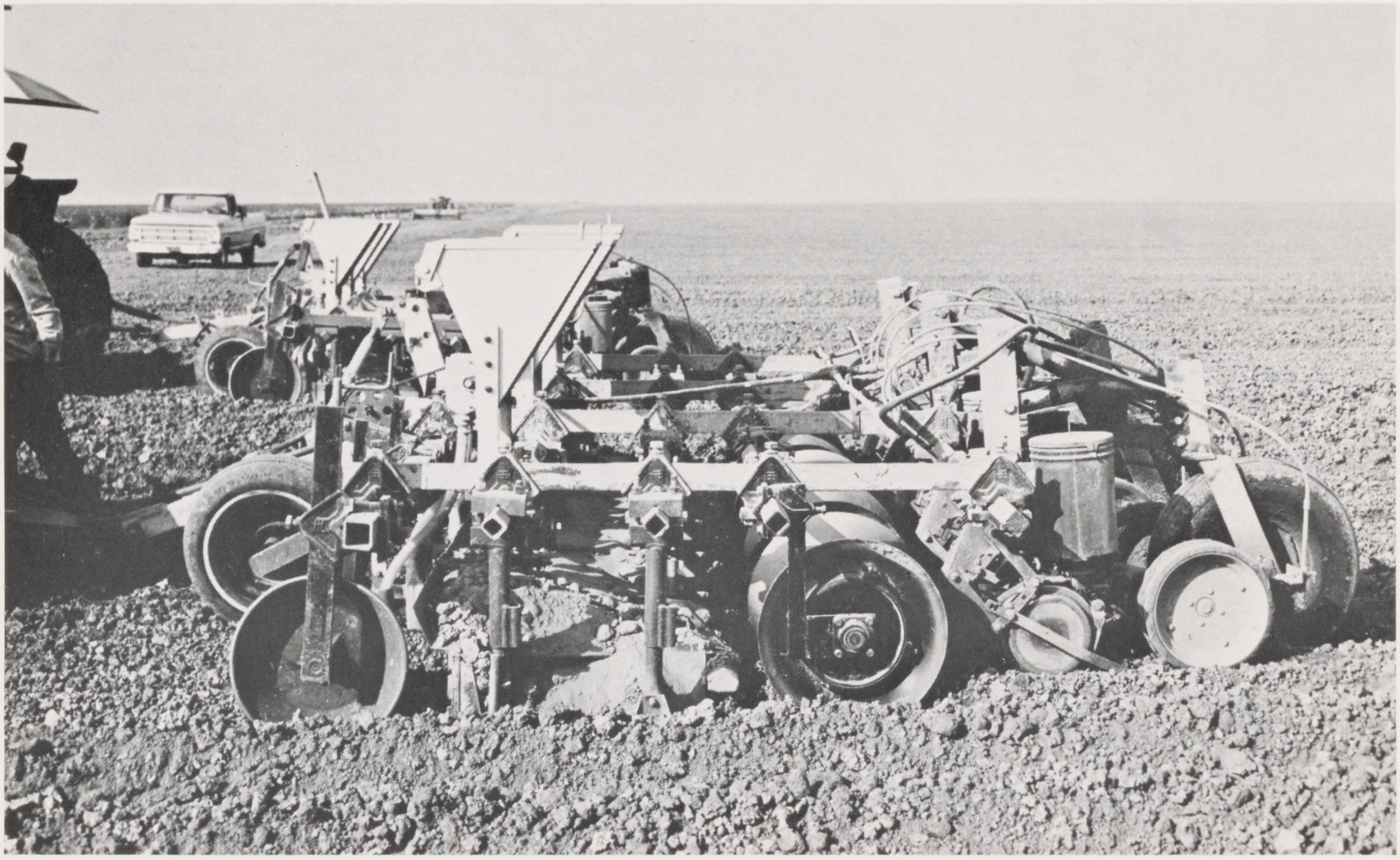
Complete mechanization of sugar beets has been a subject that has been talked about for some time. Some growers have been able to mechanize completely but the majority have not. With some of the newer advances in herbicides, insecticides, equipment and techniques, however, complete mechanization is becoming more of a reality.

One technique or method of approach which will help fill the gap to complete mechanization is the systems approach. The approach is not new and, simply stated, it means the integration or combination of the factors of productions in such a way that maximum production is achieved at minimum cost. The systems approach can be applied to any operation from ground preparation through harvest. A systems approach to planting, for instance, would have as its objective the elimination of separate trips through the field by combining two or more operations into one. The end result would be a reduction in time, fuel costs, man hours required, compaction and investment in separate equipment.

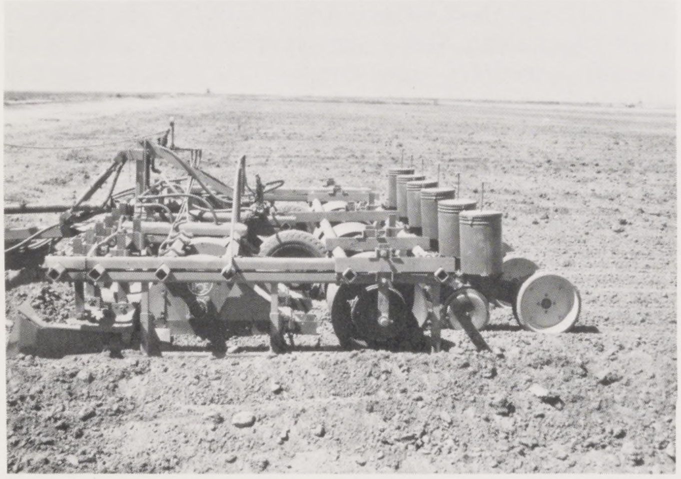
To use a system to maximum advantage, the grower must provide the best possible conditions for accurate seed placement, rapid germination and good root growth. Accuracy and timeliness are probably the keys to the success of any system. Often the advantages of a precision system are nullified for instance, by excessive tractor speed, improperly adjusted equipment, poorly prepared ground or improper timing. In short, a precision system does not guarantee a precision job unless properly supervised.

Sleds lend themselves nicely to the systems approach but other equipment can also be used as a system or part of a system.

The equipment pictured on the following pages is a sample of what some growers and chemical companies have done in utilizing the systems approach. It is hoped that these photos will be thought provoking enough for the viewer so he might try to apply the systems approach to his own operation and thereby come a step closer to complete mechanization.

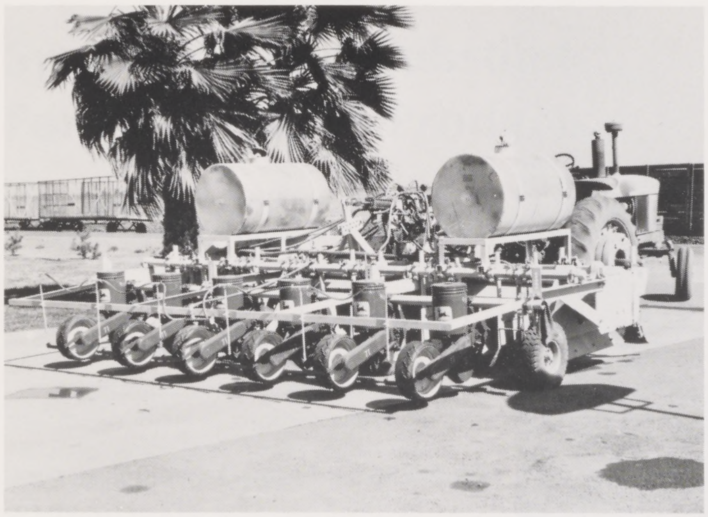


This six-row sled combines a number of operations. From left to right the equipment includes: cone guides to provide accurate tracking; Clampco applicators to inject Thimet; bed shapers; spools to enhance shaping and tracking operations; John Deere #71 Flexi-planters; and spray nozzles mounted behind the packer wheels to apply a four inch band of phosphoric acid as an anti-crusting agent. This sled was used in combination with the twelve row lister pictured on page 30. These systems resulted in more precise placement of fertilizer, seed and insecticide in addition to eliminating at least 6 to 7 different operations which resulted in a substantial cost savings.

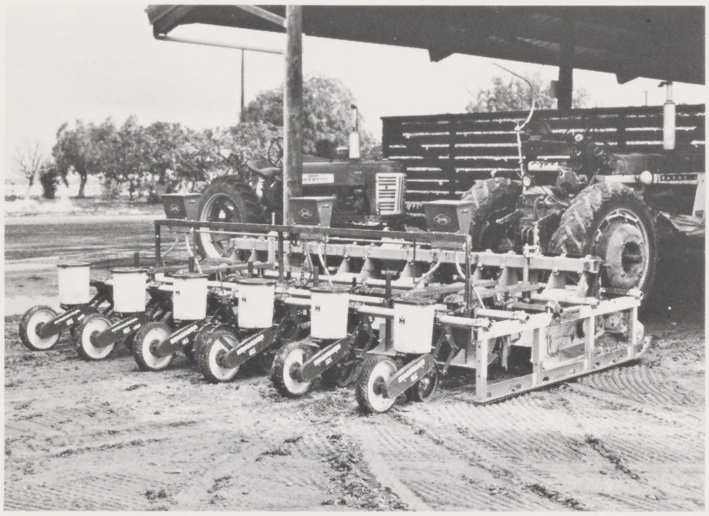


Six row sled equipped with bed shapers, Bye-hoe herbicide incorporators, spools for shaping, firming and tracking, and planter units.

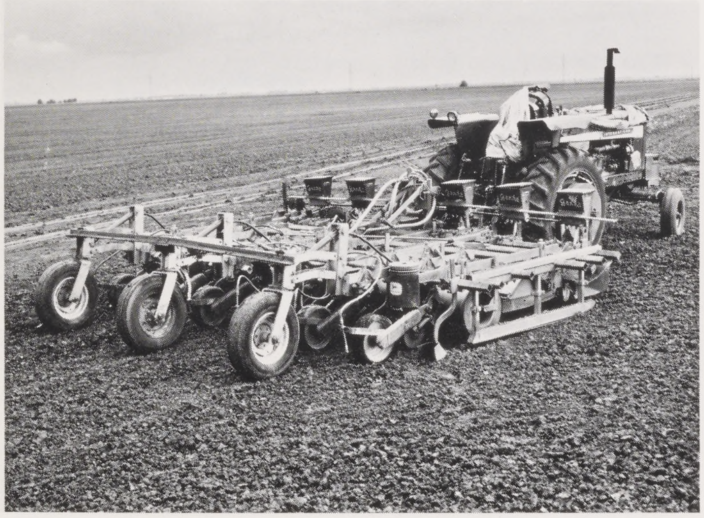
Treflan incorporation requires two passes with a rolling cultivator. This modified unit applies and incorporates in one pass.



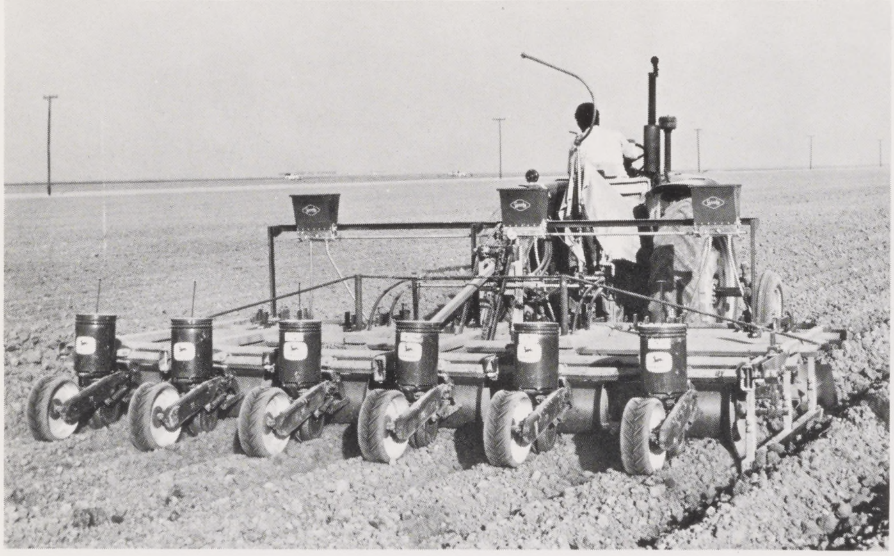
Clyde Taylor of Visalia, Calif. built this once-over listing, mulching, fungicide-herbicide applicating, shaping and precision planting sled.



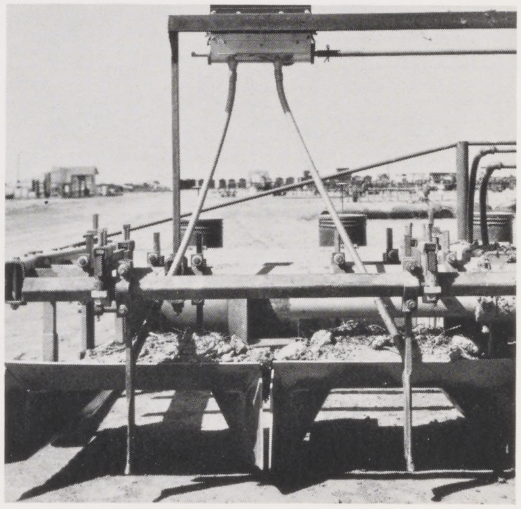
This sled is equipped with power mulchers, bed shapers, Gandy insecticide applicators and precision planter units. Note the placement of the Gandys.



Union Chemical Co. set up this sled to apply Thimet, shape and mulch beds, plant and apply a post-plant pre-emergence application of Pyramin and T.C.A. Note the spray nozzles behind the packer wheels.



This sled applies Thimet, shapes beds and plants.



A close-up of the above sled shows the Thimet injector system.

Another 12-row lister rig of the Melville E. Willson Co.

This side-winder unit mulches the soil, shapes the beds, applies fertilizer and insecticide, plants and is also used for cultivation.

Synthetics And Substitutes For Agricultural Products

Synthetic and substitute products will continue to compete strongly with farm products according to a recent report by the U.S. Department of Agriculture. The report, by a special task force in USDA's Economic Research Service, is entitled "Current Information on Synthetics and Substitutes for Agricultural Products."

Traditional farm products will continue to supply the major market requirements for food, but are vulnerable whenever new technology offers a replacement with lower costs or new properties. Replacement products made with agricultural products—such as filled and imitation milks, and meat-like foods from soybeans—are called substitutes. Replacement products from nonfarm sources—such as saccharin for sweetening instead of sugar—are called synthetics.

Most replacement products in food uses are substitutes. Most replacement products in nonfood uses are synthetics. Farm products in nonfood uses have faced the greatest competition to date.

Dollar value for nonfood marketings of crop and livestock output in 1967 was about 10 percent of total farm marketings, excluding feed and seed, according to the USDA report.

The current assessment of some of the more important commodities:

DAIRY PRODUCTS

The dairy industry is under some of the heaviest pressure today. Substitutes have taken over half the butter market, a substantial share of the coffee cream market, and 15 percent of the frozen dessert market in the 13 states where mellorine can be sold. Now, imitation fluid milk products are coming into the market—and the raw materials for the imitations cost about 13 cents per half-gallon less than fresh fluid milk.

To meet this competition, the dairy industry has developed some new products from milk—such as ice-milk and low-fat milk. Some dairies have begun to make and market imitation products along with traditional dairy items.

FIBERS

The economists expect that new manmade fibers will be produced and new properties added to old ones, that production of manmade fibers may increase, and there will be increasing world competition in production of natural fibers. On the natural fibers' side we can expect continued research to add new properties, continuous rather than batch processing, permanent press wool garments and still lower production costs.

MEATS

Vegetable proteins—particularly soybeans—could cut into some of the meat market in the future. Soy flour is already being used as a binder in hot dogs, sausages and other comminuted meats. It may also be used as a meat extender—the laws now generally allow a meat product to contain 3.5 percent vegetable protein and not all of this allowance is being used.

High protein meat analogs (imitations) made from textured soy protein isolates are still expensive, though they have gained a market among people who avoid meat for dietary or religious reasons.

Price will determine how heavily soy proteins gain in direct competition with meat. Lower consumer prices would be necessary to achieve large gains in the current market.

LEATHER

The domestic demand for cattle hides has been constant for the last ten years at 22 to 24 million pieces —but the researchers expect demand will be only 21 million pieces by 1980. The reason—synthetic competition. Currently, there are 69 leather substitutes available, most of which sell for less than leather. In addition, the substitutes usually have such properties as light weight, scuff resistance or dye fastness.

Since we expect to produce 46 million pieces of hide in 1980, the domestic market will probably take less than half of the production. The export picture is cloudy too, because of increased world slaughter and availability of substitutes.

SUGAR

Corn sweeteners and noncaloric sweeteners will probably continue to replace sugar, but the market for sugar in the U.S. will continue to grow slowly for the foreseeable future.

CITRUS JUICES

Synthetic citrus products have gained about 5 percent of the fruit juice and beverage market. Expected increases in citrus production, and a continued upturn in production of synthetics will probably intensify the competition.

FATS AND OILS

The market for fats and oils in soap is down now to one-third of its 1948 size because of the inroads of detergents. In 1966, use of drying oils (in paint, printing ink, etc.,) was only 64 percent of what it was in 1950.

(Continued on page 37)

A Review Of The 1969 Sugar Beet Crop

By John M. Kendrick

Mr. Kendrick is Agricultural Manager for Spreckels Sugar Company and is headquartered in the San Francisco office.

At this writing, the 1969 harvest is temporarily concluded. In spite of poor crops harvested during August, September and October, the fall harvest in California closed with good quality and relatively high sugar content beets. In general, the crop harvested by Spreckels' growers in California and Arizona in 1969 was characterized by average tonnage and below average sugar content and quality. Company yields to date in California are 20.0 tons per acre and 13.7% sucrose.

District I — California Coastal Area — Growers in this district enjoyed better than average sugar beet yields in 1969. Yields averaged 26.5 tons per acre with a sucrose content just under 15%, or 7,850 pounds of sugar per acre. Highest production in the district came from the Soledad area which yielded an average of 8,700 pounds of sugar per acre.

District I — Imperial Valley — 1968 Crop — The Imperial Valley crop harvested this past spring and summer was very disappointing for grower and processor alike. Spreckels' growers averaged in excess of 17 tons per acre and 14.8% sugar for an average sugar-per-acre yield of 1,150 pounds. This crop has been called the most expensive on record and one of the poorest yielding. Optimism reigns, however, and hopes are up for the 1969 crop just planted.

District #2 — Manteca — The harvest in the Northern San Joaquin and Delta area ground to a halt on December 15, completing the finest fall harvest in that area in many years. During the month of September, when sugars and tonnages were very poor, growers in the "beet free" areas harvested their share of the crop at some individual sacrifice. Last year's late spring made a good September crop unlikely. Nevertheless, it was imperative that an early harvest be sustained to insure early plantings in beet free areas for the 1970 crop. As it turned out, the crop improved as harvest progressed and the average yield for the Manteca factory district was just over 20 tons per acre and 14.3% sucrose for the fall harvest. As a result of the complete fall harvest in the beet free areas, timely plantings are expected next spring. The spring crop is expected to be a good one and should be harvested in good time.

District #3 — Woodland — Much of what was true for the Manteca area is true for the Woodland area. Early yields and sugars were poor, but beet growers realized harvest was essential in order to avoid late planting the following spring. The cycle of late spring plantings, late fall harvest and overwintering excessive tonnage in beet free areas had to be broken. The fall harvested crop in the Woodland factory area averaged 18.5 tons per acre and 14% sucrose. With approximately 50% of the 1969 crop harvested this fall, next spring should bring a shorter harvest than we have experienced in the past.

District #4 — South San Joaquin — Kern County crops that were planted prior to the rains yielded very well (see page 34). Unusual weather delayed plantings in northern Kern County, the east side of the valley, and the Fresno-Kerman area, resulting in a short growing season and reduced yields. It is safe to say that 1969 yielded a below average crop in those areas. There are some bright spots, however, as the new west side area yielded very well and shows a great future potential. The spring crop in the Dos Palos-Los Banos area looks very good.

The fall harvest in District #4 progressed very well under an area type harvest plan and averaged just over 19 tons per acre and 13% sucrose on 982,000 tons of beets.

District #5 — Chandler — 1969 is a year many people in the beet sugar business in the southwest would like to forget. The 1968 crop in the Chandler area, which was harvested in the summer of 1969, was of average yield but sugars were poor, like those in the Imperial Valley.

The fall harvested crop in Arizona was also hit by devastatingly low sugar content. This phenomenon seems to be widespread in the industry this year.

It must be concluded that 1969 was one of those unpredictable and unaccountable bad years where many crops over wide areas suffered low production, particularly with respect to quality. The Arizona crop was no exception, with the crop harvested in the spring and summer of 1969 averaging at 19 tons per acre and 13.5% sucrose, and the crop harvested this fall averaging 16 tons per acre and 12% sucrose.

Near record tonnages were harvested in the 1968 crop year as evidenced by the large honor roll.

The 1968 Honor Roll

We proudly publish the names of growers whose 1968 sugar beet crop exceeded 25 tons per acre in the Manteca, Woodland and Mendota Districts. The names are listed in descending order of pounds of sugar per acre. The Summer issue of the Bulletin contained the names of those who earned a place on the Honor Roll from the Salinas District.

DISTRICT II, MANTECA

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Frank & Steve Jr. Solari	40	41.19	12,933
Stewart R. Clever	26	41.06	12,589
J. & R. Solari	35	39.57	12,155
Theodore R. Baskett	76	38.62	11,856
Fumio Nishida	11	46.67	11,378
Stephen Pellegri	31	36.33	11,219
Frank Ormonde	92	38.63	11,218
Donald Nilsson	5	34.13	11,140
Joe Toste, Jr.	38	37.84	10,853
Manuel Amaral	51	35.91	10,758
R. & J. Dondero	41	33.42	10,627
Enrico Pizzi	17	30.91	10,435
Jim T. Nishida	14	33.87	10,391
Fumio Nishida	27	37.52	10,288
Van Groningen	33	35.30	10,096
Kaiser & Lindeman	46	34.14	10,058
J. & W. Vignolo	93	33.69	9,898
Robertson & Sans	89	32.33	9,846
Tony A. Sanchez	57	33.70	9,786
Mazzanti Bros.	42	30.96	9,740
Dwayne Petz	40	30.56	9,669
Brocchini Bros.	146	32.58	9,650
Giannecchini Bros.	75	31.22	9,572
Tony A. Sanchez	71	32.49	9,572
Robert Batch	92	34.02	9,552
Shiba Farms	156	30.51	9,494
Jack Kimoto	189	31.61	9,470
Dwayne Petz	26	32.68	9,438
Melvin A. Baumbach	49	32.59	9,405
Robertson & Son	40	31.92	9,365
Ronald L. Davis	56	33.23	9,330
James A. Luis	94	28.37	9,322
A. Togninali	79	30.55	9,257
Henry C. Baumgartner	63	36.12	9,254
C. A. Nilsson	61	28.63	9,213
Richard Medeiros	68	29.35	9,210
C. A. Nilsson	109	27.84	9,209
Ed. Thoming & Son	112	32.02	9,190
Murata Bros.	64	30.44	9,168
Fred Fukano	98	28.90	9,150
Melvin A. Baumbach	32	30.72	9,136
H. Ehlers & Sons	107	32.07	9,134
Joe Ratto, Jr.	58	28.72	9,132
Joe Sabbatini	100	29.22	9,117
Calcagno Farms	33	29,57	9,096
Murata Bros.	42	32.07	9,050
Consolidated Growers	89	29.17	9,025
Lucio J. Costa	51	29.33	9,016
Calcagno Farms	70	30.67	9,005
Dexter Bros.	119	30.97	9,000
Ralph Panella	50	28.76	8,996
Silverio Santos	89	29.18	8,993
James A. Luis	95	28.91	8,991
Henry Arata	52	28.24	8,958
Grant & Wilson	61	30.31	8,929
Guido Biagi	127	26.91	8,896
Tony A. Sanchez	83	29.09	8,843
Robert Norman	108	27.60	8,804
Jack F. Howard	119	29.76	8,767
Herman & Ronald Ohm	90	28.79	8,763
Consolidated Growers	62	30.00	8,736
J. & R. Solari	58	28.06	8,704
Kaiser & Lindeman	175	30.73	8,690
Russell Reece	59	28.59	8,663
Enos & Woodward	135	28.85	8,660

(Continued on next page)

DISTRICT II, MANTECA—continued

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
William F. Garden	48	26.64	8,637
John J. Carvalho	106	30.43	8,629
George B. Lagorio	79	28.37	8,619
R. E. Thorsen	75	28.78	8,588
Calcagno Farms	41	30.10	8,554
Henry Pelucca	140	29.17	8,488
Hanson & Barkley	94	26.47	8,465
Tony A. Sanchez	82	27.42	8,445
Louis W. Pelucca	26	26.60	8,427
Lester Rogers	120	26.66	8,403
Westing Farms	58	26.41	8,388
Takemori Bros.	65	27.43	8,377
Tony Pereira	159	28.05	8,336
Calcagno Farms	51	27.69	8,335
Helen F. Westbrook	96	30.69	8,323
Stephen Pellegri	41	27.93	8,318
Joaquin Mota	24	31.32	8,294
James A. Luis	87	25.60	8,289
Henry Hoff & Sons	64	29.20	8,275
Stephen Pellegri	167	26.51	8,207

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Henry Arata	75	25.47	8,181
David Vara	33	25.60	8,156
Tanaka Farms	319	26.71	8,135
Joaquin Mota	181	27.37	8,102
Stephen Pellegri	117	32.89	8,084
Henry C. Baumgartner	13	32.61	8,081
Jory Bros.	88	25.53	8,057
Ralph Panella	72	25.72	8,040
Shiba Farms	172	26.47	8,004
Enos & Woodward	137	25.33	8,004
Aldo Navone	21	26.73	7,970
Norman B. Borth	62	25.16	7,951
Russell Reece	11	26.18	7,917
John A. Roseberry	53	30.35	7,915
Manuel Amaral, Jr.	41	26.54	7,914
Calcagno Farms	151	28.05	7,899
M. J. Costa	57	27.64	7,899
Alan Giovannoni	59	26.63	7,855
Dwayne Petz	29	25.92	7,828
Maciel Bros.	76	27.22	7,796

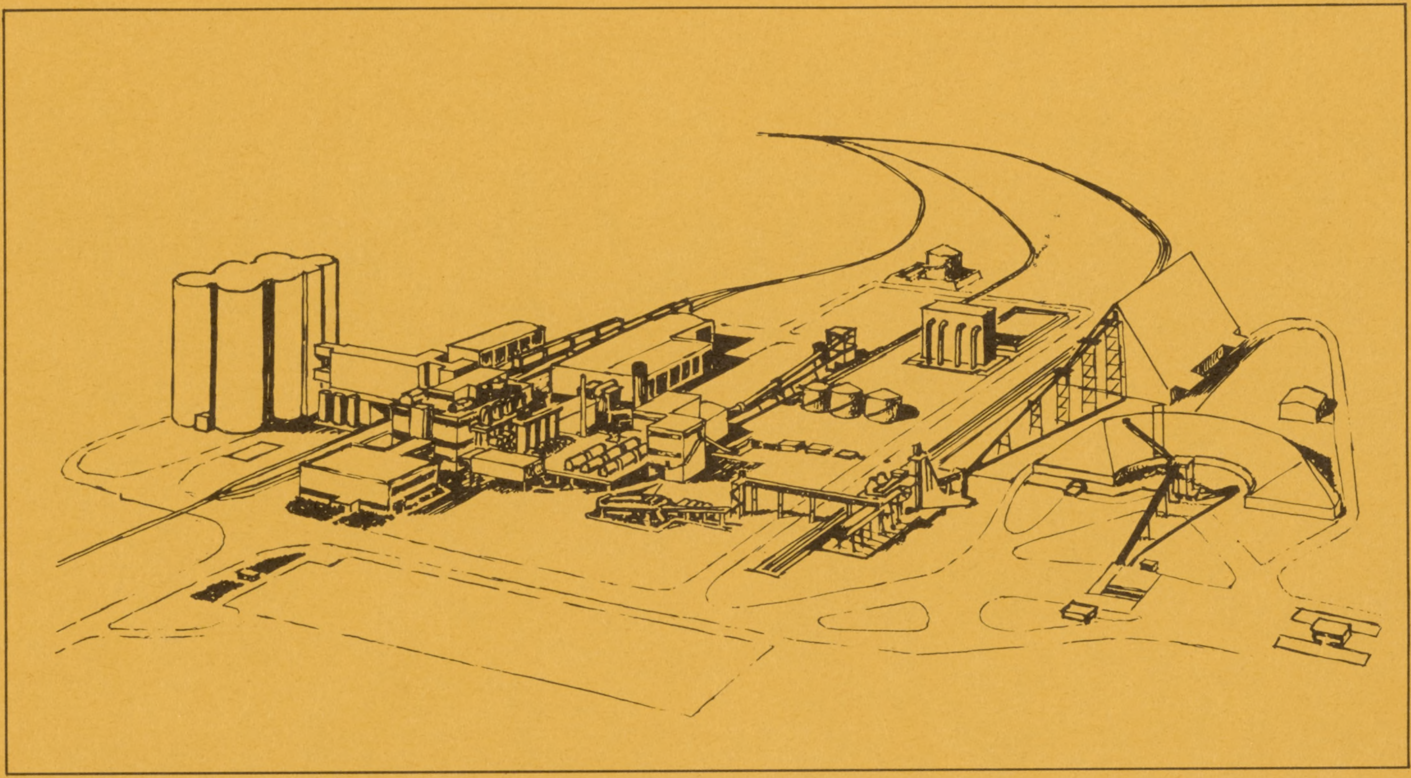
Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Dwayne Petz	66	28.88	7,734
R. & J. Dondero	82	25.46	7,714
James Craven	107	26.49	7,713
H. Ehlers & Sons	103	25.49	7,688
Melvin S. Silveira	142	27.71	7,670
Joe Toste, Jr.	39	25.56	7,637
Joaquin Mota	80	26.25	7,602
Frank Fialho	87	27.16	7,599
Takemori Bros.	100	25.69	7,527
R. & R. Ripken Farms	32	25.23	7.518
M. C. Thorkelson & Co.	297	26.33	7,493
Henry C. Baumgartner	4	30.88	7,473
Takemori Bros.	28	25.34	7,404
Baragno & Sons	78	26.24	7,352
Takemori Farms	107	25.38	7,259
Dutra & Olivera	98	26.55	7,157
Maciel Bros.	113	25.73	6,999
Theodore R. Baskett	119	27.51	6,944
Lovegreen & Wilson	58	26.06	6,901
Silverio Santos	59	25.83	6,612

DISTRICT III, WOODLAND

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Ellendale Farm Inc.	145	36.64	10,897
Holdener and Wiegand	63	33.66	10,778
Manuel Bastiao	65	37.51	10,285
Alfred W. Cruickshank,Jr.	35	34.34	10,275
Heidrick Farms, Inc.	200	33.35	10,165
James M. Campbell	86	34.69	10,046
Solano Farms	67	31.41	10,032
J. D. Stephens & Sons	90	34.71	9,996
Jimmy Leong	52	34.14	9,996
Fred H. Rehrman	155	30.56	9,901
George W. Anderson	40	31.65	9,824
Fred Rehrman & Son	109	30.00	9,768
Wm. A. McDonald	73	34.43	9,723
Alan Borchard	42	30.09	9,677
E. M. Ullrich	74	32.47	9,462
Eugene G. Cain	12	33.26	9,406
C. Kenneth Snyder	69	33.47	9,352
Joe Gnoss, Jr.	155	30.59	9,342
Manuel Bastiao	35	27.86	9,333
J. L. McClish	39	29.57	9,332
Gerald K. Mathews	51	33.67	9,327
Richard Moore	68	30.69	9,256
Bulkley Ranch	17	32.56	9,247
E. L. Wallace & Sons	142	32.02	9,228
Roger D. Moore	78	30.44	9,150
Oji Bros. Farm, Inc.	75	30.97	9.149
Holdener & Wiegand	135	28.91	9,141
Pete Aspiras	83	27.58	9,123
Rosalind G. Criste	147	31.27	9,037
Henry Rehrmann	96	28.71	9,038
M. B. Avilla	73	30.20	8,981
Joe Gnoss, Jr.	116	30.48	8,967
Winston R. Peterson	39	29.18	8,964
Eugene G. Cain	49	29.42	8,926
Emmett Heidrick	48	32.57	8,924
Solano Farms	75	27.51	8,924
Emmett Heidrick	62	30.91	8,890
Edgar Everett	102	28.06	8,889
Hatanaka Bros.	35	30.26	8,884
William E. Duncan	91	28.21	8,869
Gary Alvernaz	49	28.76	8,824
J. L. McClish	22	32.31	8,750
Bulkley Ranch	73	29.01	8,744

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Heidrick Farms, Inc.	139	30.17	8,731
Giannoni Bros.	157	30.42	8,700
Dela Torres Bros.	68	30.41	8,667
Sagara Bros.	76	31.13	8,667
Rudy Howald	151	29.96	8,652
M. Martinez	35	28.87	8,621
Shigaki Bros.	132	28.43	8,620
Sagara Bros.	79	29.71	8,616
John Lamont	123	29.05	8,570
Hatanaka Bros.	351	33.24	8,543
Bulkley Ranch	75	27.56	8,538
Elmer Tiahrt	55	27.96	8,500
Ernest Dietrich	112	29.34	8,491
Morita Bros.	73	25.71	8,443
Sagara Bros.	44	27.37	8,392
Rudy Howald	101	27.46	8,364
Nishikawa Bros.	182	29.98	8,364
Haussler Bros.	75	27.74	8,328
Joe Gnoss, Jr.	57	28.33	8,312
Robert G. Arens	23	33.32	8,303
Marino Romani	104	28.43	8,296
Harry Gimenez	25	29.38	8,221
Schroeder Bros.	74	26.18	8,194
Gary Alvernaz	43	27.06	8,167
Edgar Everett	82	28.61	8,142
Heidrick Farms, Inc.	304	29.00	8,137
Gary Alvernaz	22	29.22	8,135
Geyer Bros.	71	26.04	8,114
M. Martinez	76	27.15	8,112
Buchignani and Hughes	66	25.33	8,111
Joe Lopes, Jr.	66	28.28	8,105
Lloyd M. Eveland	36	27.10	8,103
Manuel Bastiao	18	26.25	8,075
Bulkley Ranch	75	26.34	8,065
Oji Bros. Farm, Inc.	60	29.57	8,037
L. C. Ulrich	295	26.98	8,024
Holdener & Wiegand	105	25.21	8,017
Manuel Bastiao	18	25.74	8,015
Jimmy Leong	22	25.31	7,998
John M. Lear	69	25.42	7,992
Heidrick Farms, Inc.	130	27.61	7,990
Sieferman & Long	76	28.30	7,986
Joe Gnoss, Jr.	123	27.25	7,973

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Robert G. Arens	135	29.51	7,950
Guido Romani	98	26.39	7,928
Alonzo Bros.	50	26.76	7,921
Orth Bros.	60	29.11	7,918
Nishikawa Bros.	60	28.98	7,912
Sagara Bros.	62	26.91	7,874
Meek & LeMaitre, Inc.	74	29.08	7,811
Wallace Bros.	110	28.08	7,823
K. & M. Kimura	38	30.81	7,801
Gary Alvernaz	36	25.15	7,797
Heidrick Farms, Inc.	229	26.06	7,797
Meyers & Reynolds	55	29.74	7,768
Gerald K. Mathews	26	28.63	7,719
Bulkley Ranch	37	26.56	7,676
Steve Papin, Jr.	83	25.72	7,670
Wallace Bros.	320	26.34	7,670
Val Galindo	38	25.06	7,658
Antonio & Simon Fortes	88	27.14	7,643
Spiva & March	18	26.38	7,571
J. W. Jones	74	27.06	7,566
Mata, Nelson & Shelton	36	26.50	7,547
Howard Bros.	123	25.40	7,544
Clark Davis	67	25.68	7,518
Geyer Bros.	154	25.07	7,516
C. E. Frazier	34	29.56	7,508
Plank & Maupin	54	26.07	7,503
E. L. Wallace	201	25.61	7,427
Plank & Maupin	83	25.74	7,418
Oji Bros. Farm, Inc.	69	27.97	7,390
Lloyd M. Eveland	135	25.93	7,250
George Abe	62	28.29	7,152
Wallace Bros.	283	27.42	7,146
Joe Lopes, Jr.	197	26.01	7,127
Meek & LeMaitre, Inc.	106	27.09	7,103
E. L. Wallace & Sons	153	27.33	7,078
Pete Fortis	69	25.83	7,041
Timothy Bros. & Breckenridge	17	28.52	6,942
Wayne Hine	81	27.92	6,907
Frank Ancheta	41	27.61	6,831
Robert Rooney, Jr.	65	30.15	6,766
Roth Bros.	71	25.47	6,765
Oji Bros. Farm, Inc.	150	27.40	6,746
Paul High	38	26.74	6,744



Factory IV, Mendota has a rated slicing capacity of 3800 tons of sugar beets per day. During the 1969 Fall campaign the factory averaged 4300 tons per day and set a new slice record of 5250 tons in 24 hours. Factory IV normally operates 230 to 250 days per year.

DISTRICT IV, MENDOTA

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Sorg Bros.	101	42.48	13,390
Kenneth McClanahan	20	45.85	13,076
Ralph Forrest	43	50.59	13,062
Clay Thurman & Percy Smart	58	41.66	13,006
Giffen, Inc.	104	44.27	12,342
K. & P. Farms, Inc.	65	51.67	12,070
William Fahey	83	40.06	11,962
J. Howard Porter	27	46.57	11,568
Ralph Forrest	44	37.99	11,169
Coalinga School Farms	6	38.26	11,019
J. Howard Porter	52	42.92	10,953
Dignolo Farms	97	40.87	10.806
Icardo Farms	70	41.61	10,802
Herman & O. L. Walls	44	38.29	10,782
Timco	135	42.11	10,603
Timco	657	35.22	10,580
J. Sanchez & Sons	37	33.08	10,546
Bruno Cauzza	44	38.04	10,461
Bob Teicheira	39	34.48	10,447
Kenneth McClanahan	40	32.96	10,429
Kenneth McClanahan	40	37.16	10,271
J. C. & H. H. Lewis	3	36.43	10,266
Henson & Landers	100	36.43	10,259
Bonanza Farm	114	30.92	10,197
H. & H. Farms, Inc.	75	39.43	10,181
J. Sanchez & Sons	44	33.15	10,164
Santa Rita Ranch	279	34.02	10,063
Vignolo Farms	85	38.13	10,051
C. E. & R. B. Klepper	82	36.54	10,005
Mitchell & Johansen	87	35.50	9,812
W. B. Camp & Sons	73	32.25	9,804
Sanders Farms	118	35.07	9,728
Dale Small	75	33.32	9,723
Giffen, Inc.	100	33.51	9,718
Paul W. Demkey	45	36.00	9,605
F. W. Handel Farming	141	34.39	9,602
H. & H. Farms, Inc.	58	37.36	9,504
Vignolo Farms	72	36.66	9,502
Frank Heuer	38	33.92	9,498
Bonanza Farms	190	28.57	9,485
Joe P. Maiorino	41	28.37	9,481
Roy Henson & Sons	159	37.00	9,465
Spreckels Sugar Co.	10	33.31	9,453
Bonanza Farm	111	31.00	9,443
Kern County Land Co.	70	33.49	9,391
Wolfsen Land & Cattle Company	466	30.79	9,379
James W. Kalpakoff	35	35.70	9,375
S. E. Brown	54	32.42	9,343
Keith Erskine	336	29.15	9,328
Kern County Land Co.	271	30.98	9,325
Robert Cardwell	232	32.24	9,317
Sanders & Sanders	59	34.29	9,306
Joe G. Fanucchi & Sons	148	33.44	9,256
Joe G. Fanucchi & Sons	76	31.54	9,254
Sunset Ranch	149	33.52	9,218
Johnson & Johnson	53	30.27	9,202
R. E. Shick	42	35.07	9,181
E. A. Boyd or Roy Frost	63	35.30	9,178
Pucheu Bros.	72	31.15	9,139
J. Howard Porter	21	37.19	9,104
Barlow Farms	58	35.93	9,069
Rancho Trio	77	35.85	9,063
Barnard Bros.	96	31.77	9,035
Giffen, Inc.	150	29.25	9,003
Anthony LoBue	74	32.15	8,983
F. R. Miller	62	31.85	8,969
Sanders & Sanders	137	29.88	8,964
Sharman Cave	36	30.42	8,937
W. B. Camp & Sons	78	30.09	8,889
Houchin Bros. Farming Co., Inc.	248	33.29	8,882
Russell Terry	43	36.14	8,825
W. L. Simmons	76	30.91	8,803
R. H. Burns	148	27.85	8,795

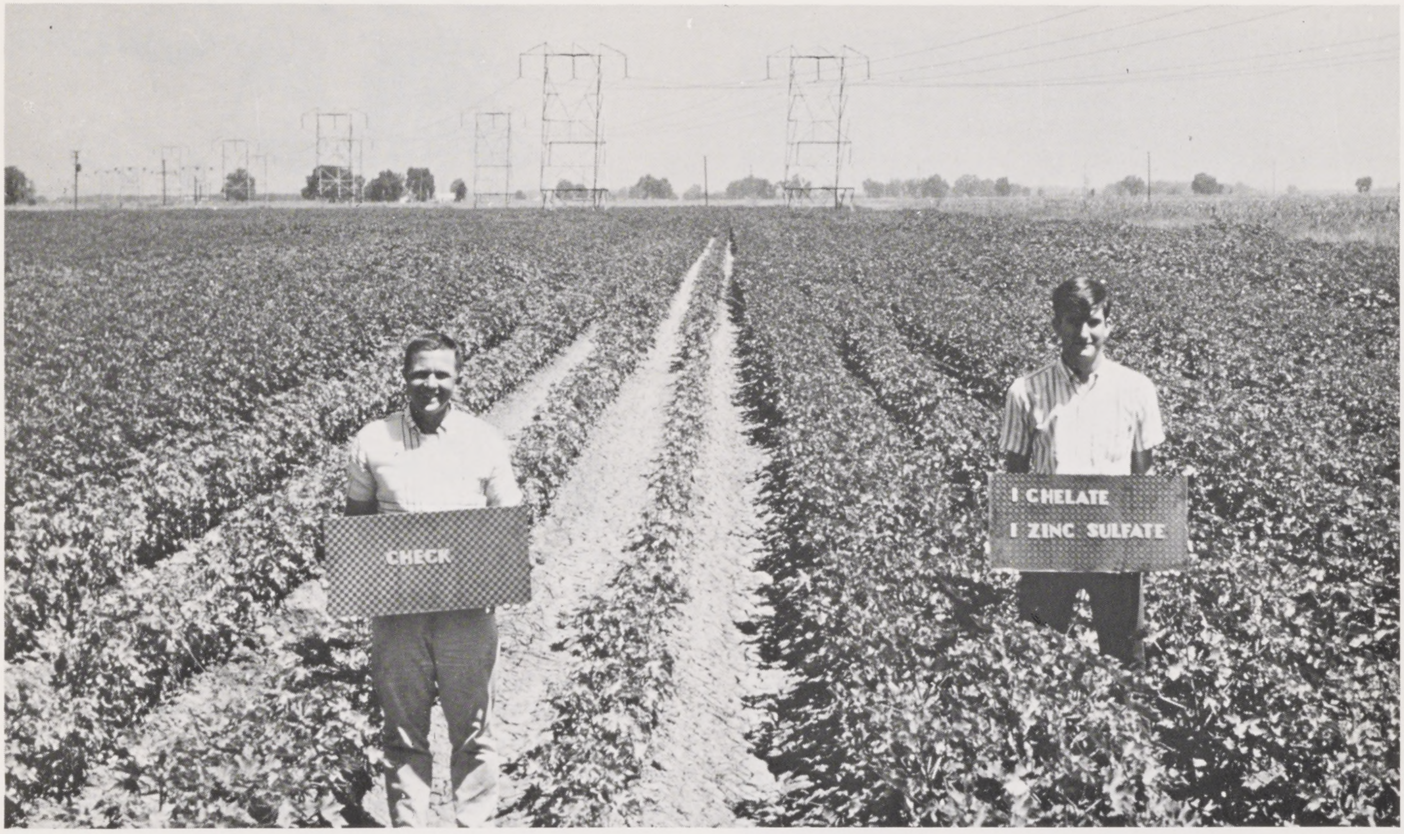
(Continued on next page)

DISTRICT IV, MENDOTA—continued

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
J. Sanchez & Sons	100	29.31	8,764
Pilibos Bros.	67	30.09	8,762
Bruno Lometti	61	31.43	8,712
Markarian Farms	38	32.72	8,690
Newhall Land & Farming Company	214	34.00	8,684
Markarian Farms	28	33.35	8,664
Ralph Forrest	47	27.95	8,642
F. W. Handel Farming	58	31.42	8,634
E. O. Mitchell, Inc.	80	33.93	8,632
C. E. & R. B. Klepper	78	35.03	8,624
Pilibos Bros.	35	30.24	8,618
Haley & Handel Farms	40	30.98	8,612
Giffen, Inc.	60	30.41	8,570
John Cauzza	72	28.48	8,516
Southlake Farms, Burrel Ranch	105	32.93	8,463
Joe G. Fanucchi & Sons	43	32.13	8,457
Jack L. Cardwell	76	29.54	8,454
Kern County Land Co.	231	33.14	8,444
H. & H. Farms, Inc.	76	26.89	8,433
Anton Giovanni Bros.	75	37.15	8,426
Timco	155	34.54	8,414
Sam & D. M. Biancucci	68	32.45	8,411
Wedderburn Bros.	282	30.16	8,397
Roy Henson & Sons	96	31.54	8,392
Fredlo Farms	125	31.64	8,366
Triple M Cattle Co.	70	25.29	8,336
Vignolo Farms	94	27.77	8,298
Del Testa Farms	36	28.93	8,291
Marvin A. Lane	150	30.37	8,279
Alvie Snow	40	28.15	8,270
Martin Snow	60	28.43	8,245
Hugh S. Jewett	85	29.88	8,241
Curtis Hair & Sons	102	26.17	8,233
Dellnomini Bros.	154	29.21	8,220
Sanders Farms	145	26.13	8,220
Rainbow Ranch, Inc.	118	25.40	8,209
Crettol Farms	75	27.82	8,207
Correia Bros.	67	28.83	8,165
McKittrick Ranch, Inc.	197	26.86	8,139
J. C. & H. H. Lewis	74	28.53	8,131
C. Paul Johnson	37	31.30	8,125
Markarian Farms	37	30.60	8,121
Vineland Farms	77	27.82	8,107
J. Sanchez & Sons	104	26.35	8,089
J. Howard Porter	56	26.95	8,089
Milo Jacobsen	114	28.53	8,063
W. M. & D. L. Colson	44	32.48	8,049
Houchin Bros. Farming Co., Inc.	37	31.56	8,041
C. F. Andresen	125	25.25	8,035
W. M. & D. L. Colson	85	31.21	8,033
Kern County Land Co.	73	28.57	8,017
Giffen, Inc.	148	32.81	8,006
Pilibos Bros	90	26.42	8,000
Lee Roy Jenzen	116	29.14	7,996
McKittrick Ranch, Inc.	156	26.73	7,992
Guthrie Farming Co.	76	30.19	7,988
Kern County Land Co.	217	28.34	7,986
Joe Freitas, Jr.	73	31.57	7,981
Goose Lake Farms	51	28.38	7,975
Bernard Bros.	69	29.52	7,970
Pilibos Bros.	35	26.98	7,954
Houchin Bros. Farming Co., Inc.	234	32.73	7,947
Stanley Hefner	9	30.68	7,946
Schramm Ranches	66	30.56	7,933
Bernard Bros.	42	26.80	7,917
Dutra Bros.	122	28.54	7,880
W. R. Greenlee Farming	88	27.78	7,884
Nichols Farms	143	30.35	7,879
D. T. Locke Ranch	132	26.21	7,879
Rolland Gonsalves	309	29.11	7,801

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Crettol Farms	68	26.78	7,788
Ferdinand Palla	105	25.92	7,786
Rio Vista Farming Co.	143	28.45	7,778
Irwin R. Efird	110	29.39	7,771
Triple J Farms, Inc.	42	29.08	7,759
Richard Hohlbaugh	35	28.09	7,747
Dutra Bros.	20	30.86	7,715
Double L Farms	241	28.10	7,688
Pilibos Bros.	43	28.93	7,666
Giffen, Inc.	97	31.21	7,654
Spreckels Sugar Co.	73	26.95	7,654
Joe G. Fanucchi & Sons	62	26.54	7,654
Giffen, Inc.	36	26.70	7,593
Way-Bill Ranch	222	28.97	7,584
E. L. Goodspeed	22	27.83	7,570
R. E. Shick	34	27.33	7,554
Costerisan Farms	46	28.96	7,541
Hugh S. Jewett	49	26.16	7,539
Deavenport Ranches, Inc.	40	25.28	7,533
A. H. Wegis & Sons	222	27.28	7,518
Derby Farms	151	29.36	7,516
Giffen, Inc.	136	26.92	7,505
Mason Snow	72	26.05	7,502
Kern County Land Co.	72	29.58	7,501
Palm Farm, Inc.	108	29.18	7,499
H. & H. Farms, Inc.	78	28.05	7,456
Fredlo Farms	81	30.42	7,441
Pilibos Bros.	38	26.04	7,427
Manuel Garcia	80	26.92	7,408
Johnson & Johnson	40	26.84	7,386
Kern County Land Co.	73	26.71	7,377
Tracy Ranch, Inc.	144	30.21	7,371
Robert Cardwell	25	27.25	7,347
John Camp Farms	62	30.55	7,338
Kern County Land Co.	60	28.81	7,306
Roy Henson & Sons	37	25.71	7,286
Chase & Harmon Farms	80	29.80	7,283
Cody A. Noel	30	26.06	7,271
Bob Cauzza	94	25.23	7,271
Destefani Bros.	31	28.59	7,262
Fredlo Farms	231	28.57	7,245
R. W. Root	27	29.05	7,228
Sam & D. M. Biancucci	106	25.29	7,208
Giffen, Inc.	148	26.45	7,200
Pilibos Bros.	33	30.17	7,199
Steve Efseaff	73	28.32	7,199
Giffen, Inc.	151	29.99	7,192
E. L. Goodspeed	177	25.96	7,149
Kern County Land Co.	88	28.73	7,148
Hugh S. Jewett	41	25.33	7,133
M. & I Farms	111	25.07	7,115
Double L Farms	38	27.33	7,095
Milham Farms, Inc.	297	27.07	7,092
Tracy Ranch, Inc.	123	26.11	7,065
Pilibos Bros.	44	26.14	7,063
Aladdin Ranch	155	25.38	7,056
Joe M. Carvalho	34	26.72	7,038
McKittrick Ranch, Inc	148	25.88	7,034
Giffen, Inc.	153	25.56	6,993
Stanley Hefner	18	27.59	6,986
Mitchell & Johansen	80	25.53	6,985
Pilibos Bros., Inc.	67	25.04	6,961
W. B. Camp & Sons	591	28.82	6,928
David Noel	24	26.08	6,906
Earl Royer	75	25.36	6,893
Crettol Farms	34	27.24	6,886
Robert Cardwell	34	25.90	6,835
C. E. Luker	31	30.40	6,795
James P. Mathias	37	26.13	6,794
Kenmar Farm	306	26.07	6,731
Destefani Bros.	41	28.75	6,693
C. J. Shannon & Sons	286	25.59	6,679
Schramm Ranches	64	29.85	6,674

Grower	Acres Harvested	Tons Per Acre	Lbs. Sugar Per Acre
Jake Kroeker Sons	69	25.26	6,638
J. G. Boswell Co.	583	25.26	6,593
Southlake Ranch	32	27.55	6,562
Pryse Farms, Inc.	70	26.27	6,441
Southlake Farms	66	26.28	6,439
Giffen, Inc.	67	27.45	6,434
Chase & Harmon Farms	27	28.03	6,408
Maurice Wahl	34	25.73	6,371
C. J. Shannon & Sons	102	25.40	6,360
Giffen, Inc.	160	25.89	6,348
M. & I. Farms	103	25.88	6,278
Uchita Bros.	62	25.39	6,266
Maurice Wahl	46	25.54	6,211



Tulare County Farm Advisor Alan George (left) demonstrates the response he obtained by applying zinc to cotton.

Zinc Deficiency Noted In Tulare County

By Allan G. George

Mr. George is a Farm Advisor in Tulare County for the Agricultural Extension Service, University of California.

Acreage showing zinc deficiency is increasing in Tulare County. Many cotton fields in the early stages of growth showed the classic symptoms of deficiency this past year.

Soil analysis in recent years have also shown that many cotton producing soils in the County are dropping into what would be considered the marginal or critical level of zinc.

Zinc deficiency may occur in small areas of a field where land has been leveled. Zinc tends to accumulate in the surface soil under natural conditions and, when surface soil is removed in leveling, the more zinc deficient subsoil is exposed.

With the increase in sugar beet acreage over the past few years, more zinc deficiency in cotton has been observed. Where such a rotation is practiced this deficiency is generally found throughout the whole field and not just in areas of a field. Most growers who produce both crops are now applying zinc to their fields and have overcome many of the production problems associated with such a rotation.

Other crop rotations in addition to sugar beets such as double cropping with cereals and sorghum or cropping to corn or sorghum are also causing zinc deficiency problems.

SYMPTOMS

Symptoms of zinc deficiency are found in cotton shortly after emergence in the seedling stage. Deficiency may be indicated by stunted plants and small leaves with interveinal chlorosis. Terminal leaves are narrow and small (referred to as "little leaf" in fruit

(Continued on page 37)

Agricultural Staff Notes

Selected Notes And Observations From Spreckels Sugar Company's Agricultural Research And Field Staffs.

ZINC DEFICIENCY

There have been many reports pro and con about the effects of zinc on sugar beet yields. This year, a grower in the Conner area, put out a trial on an 80 acre field. The east half was untreated and yielded 29.9 tons/acre. The west half was fertilized with zinc and produced 33.7 tons/acre. The sucrose percent of 15.5 did not vary significantly across the field.

Zinc ammonium nitrate was applied at a rate of 2.5 gallons per acre. This amounted to 10# Zn and 14# N per acre. It was applied by air just prior to the final discing before the field was bedded up for planting. The cost of the material was $6.00/acre and the application was $1.50. As a result of this trial, as well as favorable responses with cotton yields, all the land farmed by this grower is fertilized with zinc every three years.

Frank Hunt—Bakersfield

HERBICIDE RESIDUES

Herbicidal residue in soils is rapidly becoming a factor in planning crop rotation. The numerity of selective herbicides, each utilized on specific crops, warrants a close scrutiny as to their effect on subsequent crops in order to prevent severe damage or total loss of a particular susceptible crop. Certainly, as use of herbicides become more widespread, growers will be required to maintain a careful record of date of application, amount, type and location of each chemical used. This problem can become more acute on ranches acquiring a new tenant where foreknowledge of herbicide use may not be available. Any resultant loss in crop could possibly lead to legal retribution to the disadvantage of both the landowner and the former tenant.

Ben Marcum—Mendota

PLANTING DATE

This past year, due to the wet winter, we had a lot of beets planted after March 1st. These beets had a struggle from the very beginning as emergence was a problem. Later these fields were very weedy.

The weighted average yields of these fields, as compared to the fields planted before March 1st, are very enlightening. In the Lerdo district, 3,939 acres were planted before March 1st and the average was 24.48 tons per acre. The 1,038 acres that were planted after March 1st averaged 16.10 tons per acre.

This information substantiates our thoughts that January and February plantings are necessary for a good yielding crop.

Carlton Schaffer—Bakersfield

COATED SEED

Approximately 1084 acres were planted to a stand in my district this year. Of these 1084 acres, 735 were planted with the Stanhay Belt Planter using a pattern of 2 seeds every 6 inches utilizing pelleted seed. 324 acres were planted with the John Deere 71 Planter with raw seed. A nine tooth sprocket on the drive with a 22 tooth sprocket under the cam, placed the seed at a 4 inch spacing without a high amount of doubling. The remaining 25 acres were planted with a non-flex Milton Planter using raw seed at a spacing of 5 inches. The Milton Planter laid the seed out at an extremely uniform spacing with a very low percentage of doubles.

Cold weather at planting time severely inhibited germination and emergence especially with the coated seed. Good stands took about 5 to 6 weeks to establish with a high amount of water usage. The raw seed emerged faster and with a higher degree of vigor than did the coated seed.

Mike Peterson—Arizona

Heath Offers Improved Line Of Harvesting Equipment

Rebel Harvester. According to the Heath Farm Equipment Company their new "Rebel" Semi-Tank Beet Harvester has many new features to improve performance and durability. A higher, steeper elevator increases the elevator strength while adding clearance over high trucks. The draper chain is split between the tank and elevator to decrease chain wear and to provide greater cleaning. The electric clutch and elevator drive have been relocated to develop more torque on the elevator chain.

The New Rebel retains features of a small holding tank for changing trucks on the go and quicker turning at row ends as well as a 32½ square foot reink bed, the largest in the harvesting business. It is available in 3 and 4 row models.

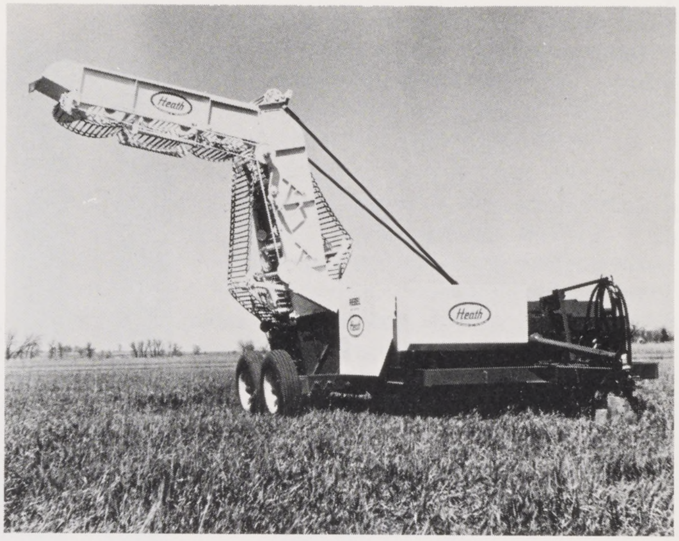
Tank Harvester. A 4-Row Tank Beet Harvester is the newest addition to the Heath Farm Equipment line. This unit is the industry's first and only 4-row tank machine. Its tank capacity of 8,000 plus pounds is the largest of any sugar beet harvester, and with its large reink screen and elevator it is a very high capacity outfit. The Heath Tank Machine can also handle 3 thirty inch rows.

Standard equipment includes a self-contained row-finder and an electric clutch on the unloading elevators.

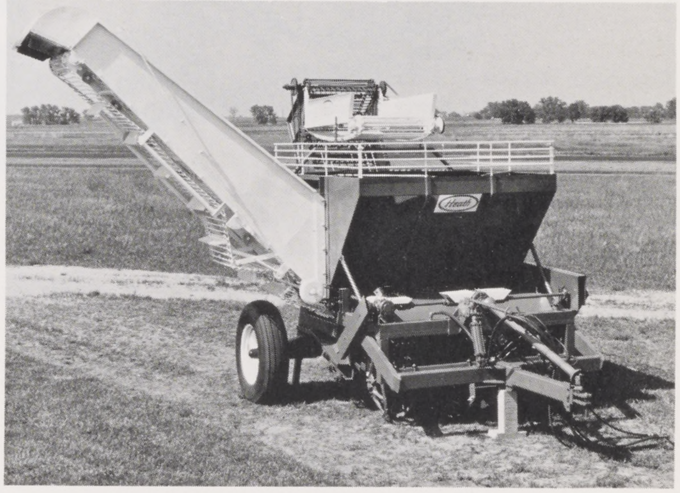
Heath Beet Top Saver. The top saver features a redesigned windrower drive pattern that utilizes two interchangeable gearboxes with a short roller chain that replaces the long strands of roller chain which were used on the old unit. The sprockets are taper locked to keep them in line to stop key shearing and to make it easier to remove the sprocket should that become necessary.

Also new for 1969 are heavier ratchet clutch springs for better machine protection, and a newly redesigned optional flail attachment to clean up beets after topping.

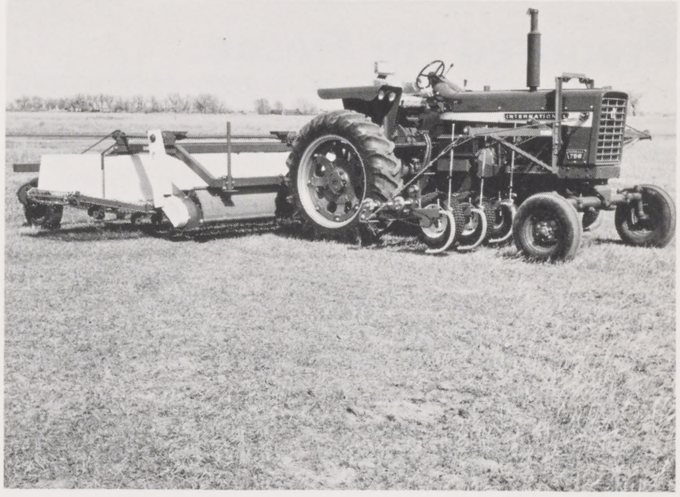
The Heath harvesting equipment is manufactured and distributed by Heath Farm Equipment, Inc., P.O. Box 312, Fort Collins, Colorado 80521.



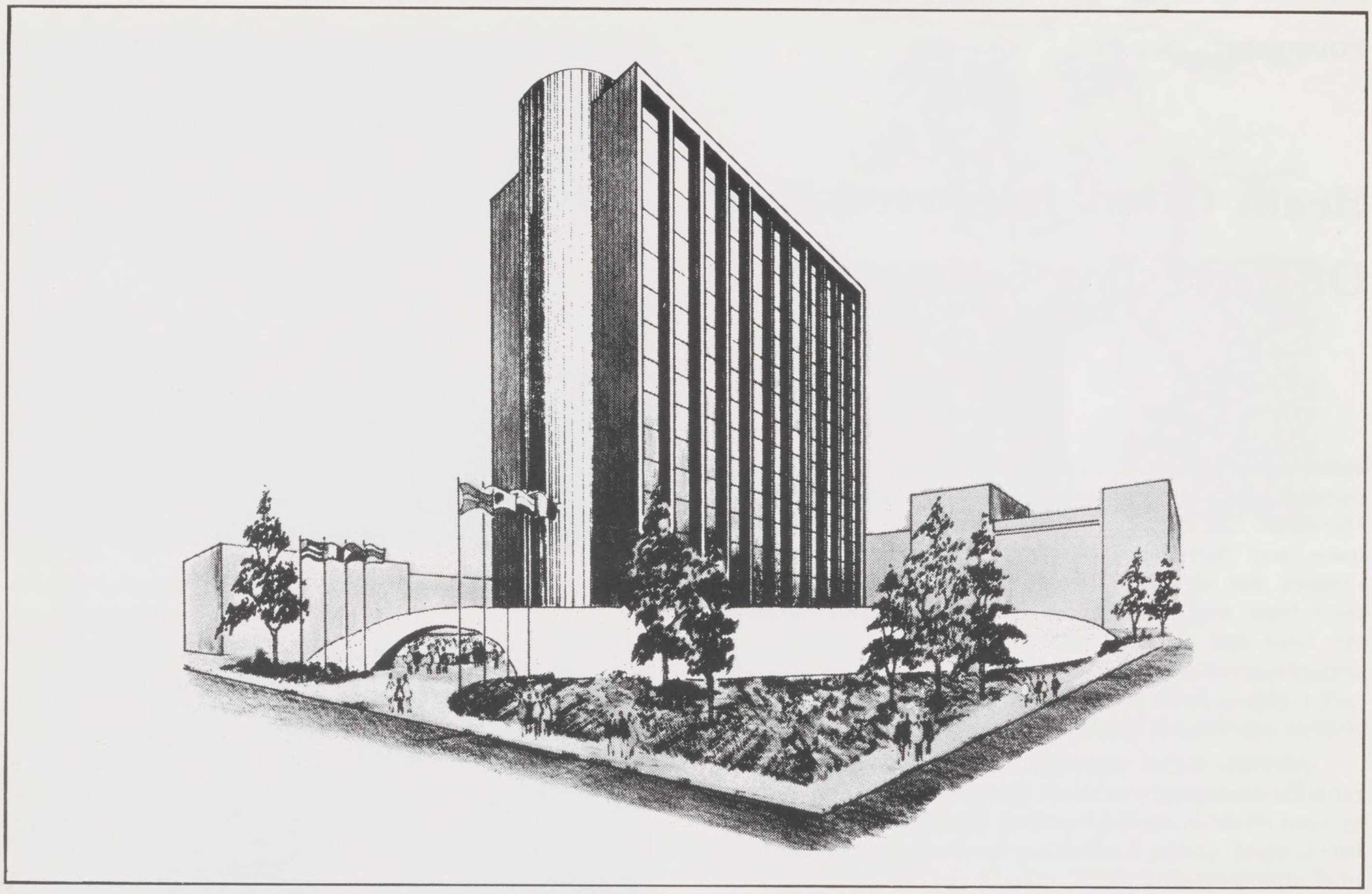
The new Rebel harvester features a 32½ square foot reink bed.



The new 4-row tank machine is built for high capacity.



The Heath Beet Top Saver has been redesigned.



This 14 story office building and concave exhibit hall are the main features of Pollack Corporation's "International Agricultural Mart."

AGRI-BUSINESS CENTER

International Agricultural Mart Proposed For Fresno

The Sheldon L. Pollack Corporation of Los Angeles recently announced plans to construct a $15 million, 14 story "International Agricultural Mart in Fresno's famous downtown mall.

The I.A.M. is the first stage in a planned complex of agri-oriented development. The I.A.M. will provide space for agricultural equipment displays, retail and agribusiness shops, service institutions and supporting office facilities.

Plans for the ambitious undertaking were coordinated by the firm and the Fresno Redevelopment Agency. The firm has development options on a total of 45 acres within the Central Business District.

"Over the years there has been talk in various parts of the nation about an agri-business complex," said Sheldon L. Pollack, president of the development firm, "but these have never been successfully executed."

IDEAL LOCATION

"We believe that Fresno is the ideal location for an I.A.M. It is the heart of the nation's most populous and fastest growing state, and at the hub of agriculture within the state."

Mr. Pollack also pointed out that Fresno's Central Business District complex enables a city with a metropolitan population of 300,000 to serve a consumer public of more than 1,500,000.

"Agriculture is becoming more sophisticated every year with technological progress proceeding at a rapid rate," Mr. Pollack continued. "No one really doubts that there is a need for an International Agricultural

(Continued on next page)

Mart, and Fresno has all the ingredients necessary to make it a success."

FEATURES

In addition to the main office building another outstanding feature of the complex will be a huge concave concrete arch display room which will contain equipment and merchandise displays. The exhibit building will open on to the Mall and will serve as an ideally located facility where manufacturers can display their products and consumers can come, look, and purchase them.

Agriculturally oriented manufacturers, services, consultants, governmental agencies and others involved with the farming industry from all over the world will be invited to participate.

A special highlight of the complex will be an international restaurant, featuring design, cuisine and native costumes of nations represented at the I.A.M. Visitors to the I.A.M. will approach the complex via the walkway of flags, leading from the downtown mall.

"The problem of feeding people, not just in the U.S., but around the world, is one of the most complex confronting man today," said Sheldon Pollack. "By concentrating the best agricultural brains, and we mean everyone from the farmer to manufacturer, grower, rancher, researcher to educator, within one complex which lends itself to exchange of information, we believe solutions might arise more rapidly and alleviate the hunger which plagues so many persons throughout the world."

ZINC DEFICIENCY

(Continued from page 33)

and nut crops) and are usually curled upward on the margin. These leaves are thickened and brittle when crushed. Leaf color symptoms may vary. Leaves may show very little color effect from lack of zinc to extreme chlorosis. As the chlorosis symptoms advance, areas of the leaf become bronzed.

Correction of zinc deficiency can be made by either foliar or soil applications. Any zinc deficiency showing up after planting can be corrected by foliar applications. Suggested rate for foliar application is 4 to 5 pounds of zinc sulfate per 100 gallons of water, using 20 to 40 gallons per acre, depending on plant size. A wetting agent should be added. Generally 2 or 3 applications should be made during the cotton growing season to supply sufficient zinc. Applications of zinc spray to the foliage may also be used to confirm or identify deficiencies.

An application of zinc to the soil in the fall or winter is the easiest remedy for correcting the problem. However, this method is more expensive than the foliar method. The application of 10 to 15 pounds of zinc per acre is recommended for soil application. Side dressings of zinc have usually not been satisfactory. Zinc does not move downward through the soil in the irrigation water. Therefore, it is suggested zinc be broadcast. Incorporation of zinc should be into the upper 6 inches of soil and will remain effective for several years.

During some zinc correction studies conducted in the Tulare area in 1966, 3 applications of zinc sulfate to the cotton foliage resulted in over .9 bale per acre increase in yield. Cost of the zinc was less than one dollar per acre. Although the production per acre in this field was not high, the return on the investment was outstanding. This was an extreme deficiency and should not indicate these kinds of responses in cotton could always be attained. However, it does indicate the importance of zinc nutrition to the production of cotton. In addition, zinc does not increase cost of production appreciably. Fortunately, cotton appears to be a good indicator plant for zinc deficiency, but a grower is already in trouble when these symptoms show. Soil analysis for zinc determination can also be a useful aid in guiding a grower on zinc levels and may help a grower avoid getting into problems with zinc.

SYNTHETICS AND SUBSTITUTES

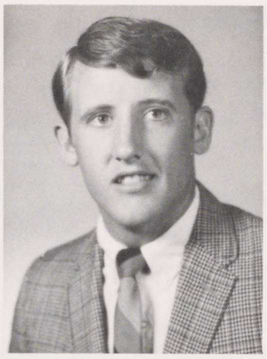
(Continued from page 31)

The largest market for oilseed meals and fats is in animal feeds. Even here, competition from urea and other nonprotein nitrogen materials will become stronger. Synthetic amino acids, high-lysine corn and yeast protein from petroleum may also provide more competition to oilseed meal in the future.

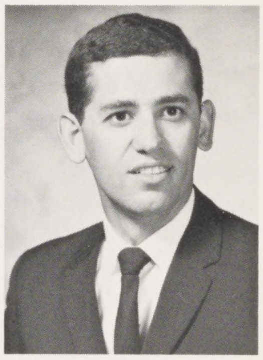
Single copies of "Synthetics and Substitutes for Agricultural Products, A Compendium," MP 1141, are available free on postcard request from the Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

Ernie Moeller Honored By Patterson Education Group

Ernie Moeller



Jerry Gallagher



Dale Comer

Ernie Moeller, District II—Manteca, Field Superintendent, was recently honored by the Patterson Association of Teachers when they named him a candidate for the "Golden Bell Award." The yearly award goes to the person in Stanislaus County who has made the most outstanding contribution to education in the county.

Mr. Moeller was selected as a candidate for the honor because of his devotion to his community. He is president of the local Board of Trustees, a past president of the Patterson Lions Club which contributes to the needs of the community's young people, a Scoutmaster of Patterson Boy Scouts Troop 81, and an Adult Scouter for the past 15 years.

He has also been active in youth oriented church activities for many years which include acting as a Sunday school teacher and church youth counselor. Besides these activities, he has been a member of Teen Town, an organization of local citizens involving youth activities and of the Band Parents Club.

He also has contributed his time to the American Field Service for foreign exchange students, and was a member and officer of the former Patterson Parents Club which existed before the school district was unified.

Mr. Moeller, his wife Barbara and four children reside in Patterson, California.

JERRY GALLAGHER JOINS STAFF

Jerry Gallagher is the newest addition to Spreckels Sugar Company's Agricultural Staff at Salinas, California. As an Assistant Field Superintendent he will work with the Agricultural Research and Field Staffs.

A native of Woodland, California, he attended Chico State College where he majored in Agricultural Business Management.

Mr. Gallagher resides in Salinas, California.

NEW AGRONOMIST AT MENDOTA

Dale R. Comer recently joined Spreckels Sugar Company's Agricultural Research Staff at Mendota as a Research Agronomist.

Mr. Comer is a native of Fresno, California. He attended Fresno State College where he majored in Agricultural Science and the University of Arizona where he received an M.S. degree in Agronomy.

He is a member of the American Society of Agronomy and the Weed Science Society of America.

Mr. Comer and his wife Suzanne reside in Fresno, California.

William J. Hurley

It is with a deep sense of loss that the Bulletin reports the death of William J. Hurley, a member of the District IV, Mendota Agricultural Staff. He served as Field Superintendent in the Dos Palos-Los Banos areas for the last seventeen years.

Mr. Hurley, 54, was a native of Artesia, California where he attended the local elementary and high schools. He attended the University of California, Davis where he majored in Agriculture. Prior to being employed by Spreckels Sugar Company in 1952 he worked for the Farm Security Administration and farmed in the Delano area.

A resident of Los Banos, Mr. Hurley was active in community affairs. He was a member of the Masonic Lodge and the Los Banos Rotary Club. He served as Chairman of the Rainbow Board, Advisor of Explorer Post 85 and was past master of the Delano Masonic Lodge. He was a recipient of the Boy Scouts of America highest award, "The Silver Beaver."

Mr. Hurley is survived by his widow Alice, two sons Jim and Harold, two daughters Katy Jean and Lillian and three grandchildren.

William J. Hurley

University of California Color Guide Helps Identify Deficiency Symptoms

California sugar beet growers who have wanted to know more about how "poor diets" affect their crop now have available a color atlas and chemical guide as their consulting authority.

The color atlas, just issued by the University of California Division of Agricultural Science, shows and identifies deficiency symptoms for all mineral nutrients now known to be required for growth of sugar beets.

CHEMICAL GUIDE

The chemical guide shows the mineral content of the leaves with symptoms, as well as normal healthy leaves. The two guides are used together for best results.

Authors of the publication are Dr. Albert Ulrich, plant physiologist in the Department of Soils and Plant Nutrition, UC-Berkeley, and Dr. F. Jack Hills, agronomist, Agricultural Extension, UC-Davis campus.

COLOR PHOTOS

The atlas opens with a color key, based on easy-to-identify leaf symptoms, so the reader can locate the descriptions and photos of the particular leaf symptoms he has seen. The photos, generally, show the location of the symptoms on the plant, the range of the symptoms from mild to severe, and closeups of the characteristics of the deficiencies. The book contains more than 100 color photos.

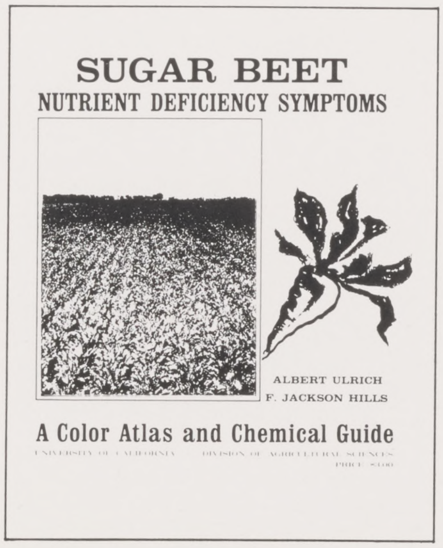
Each color page in the atlas contains six to nine pictures, showing how the deficiency involved affects the leaves and the plant. In the potassium deficiency, for instance, one color plate shows, among other things, how a leathery-tan color on the edge of recently matured leaves is the first symptom to appear.

Among other deficiencies characterized are those for nitrogen, sulfur, molybdenum, phosphorus, magnesium, calcium, boron, zinc, manganese, iron, chlorine, and copper.

There is also a section on the healthy sugar beet and how it grows, comparisons and commentary on deficient sugar beets, and the special reference table to determine nutrient deficiency by chemical analysis.

"Corrective measures for nutrient deficiencies are not offered in the manual," said Dr. Ulrich. "Sugar beet growers should contact their farm advisors or other technical consultants for the best advice based on local conditions and experience."

The book is available from the Office of Agricultural Publications, University Hall, University of California, Berkeley, Ca., 94720. It also may be obtained through the Public Service offices on the Berkeley and Davis campuses, and from some county Agricultural Extension offices. The price of the color atlas is $3.



SUGAR BEET
NUTRIENT DEFICIENCY SYMPTOMS

ALBERT ULRICH
F. JACKSON HILLS

A Color Atlas and Chemical Guide
UNIVERSITY OF CALIFORNIA DIVISION OF AGRICULTURAL SCIENCES
PRICE $3.00

Sprinkler Text Now Available

The Sprinkler Irrigation Association has announced the publication of the Third Edition of "Sprinkler Irrigation" which is recognized as a leading text on the subject.

Mr. Claude Pair, P.E. Irrigation Research Engineer for the USDA Agricultural Research Service, Soil and Water Conservation Research Division at Kimberly, Idaho, has served as Editor-In-Chief of the publication. He was assisted by Kenneth R. Frost, Professor of Agriculture at the University of Arizona; Walter W. Hinz, Extension Agricultural Engineer, University of Arizona, and Crawford W. Reid, Sprinkler Irrigation Association Technical Advisor.

The new volume is approximately 450 pages in length, a 20 percent increase in material over the now out of print Second Edition.

The text sells for $12.00 per copy (postage prepaid) in the United States, its territories and possessions, Canada and Mexico. The price in other countries will be $12.50.

Inquiries should be directed to the: Sprinkler Irrigation Association, 1028 Connecticut Avenue, N.W., Suite 822, Washington, D.C. 20036. Orders for the textbook must be accompanied by check or money order.

Bulletin Copies Are Available

A limited number of back issues of the Spreckels Sugar Beet Bulletin are available.

Requests should be directed to:

Spreckels Sugar Beet Bulletin
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Please specify the volume number and issue number.

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Jeffory Scharff, II, of Visalia, California won County and Regional 4-H honors with his demonstration on how sugar is made from sugar beets. Jeffery recently completed his second year in the 4-H Sugar Beet Project which is sponsored by Spreckels Sugar Company.

4-H Sugar Beet Project Completes 13th Year

The 4-H Sugar Beet Project was developed in 1957 by the Agricultural Extension Service of the University of California in cooperation with Spreckels Sugar Company.

The program presents an opportunity for youngsters to learn the practices required to grow sugar beets and also observe how sugar is made in the factory. Participants in the program begin by growing a small plot of beets. They learn how to plan, prepare the soil, plant, care for, and harvest the sugar beets with the assistance of their local Farm Advisor and Spreckels Field Superintendent.

In the second year of participation sugar beets are raised in a plot which could evaluate fertility, planting dates, and varieties. The third year or advanced phase of the program can involve raising beets on a commercial contract (usually one acre) or advanced problems in disease control and fertility. There are many interesting and educational activities related to the project which help stimulate a young mind.

At the end of each year Spreckels Sugar Company hosts the participants and their parents at a local factory. Activities usually include a film on sugar making, a review of the participants plots, presentations on cultural practices, presentation of sugar awards, and a tour of the factory.

Each participant is awarded an amount of sugar equivalent to what he actually raised in his plot. In addition, a silver sugar bowl award is presented to the most outstanding participant in the program from each county.

Participants in the program reside in both the country and the cities. If a better understanding of farming and farm problems is attained by participation in this program, if idle time is directed into productive use and an inquiring young mind is stimulated then the program can certainly be judged as being worthwhile

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SPRECKELS SUGAR BEET BULLETIN

Gerald G. Nordstrom	*Editor*	MENDOTA	209-655-4961

THIS FILE FOLDER accompanies the year's first issue of the Spreckels Sugar Beet Bulletin.

We hope that you will save this folder, so that future issues may be filed for reference.

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